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HELMINTHOLOGICAL ABSTRACTS

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Vol. III, No. 4.

179—Agricultural Gazette of New South Wales.

a. [Henry, M.]—" Kidney worms in pigs." XLV (11), 643-644. [1934.]

(a) *Stephanurus dentatus* which occurs in the kidneys of pigs is distributed in Australia from the far north of Queensland to the central coastal districts of New South Wales and to some slight extent to the south. It is rare in Victoria and South Australia. R.T.L.

180—Agriculture and Live-Stock in India.

a. BHALERAO, G. D.—" The common worms of sheep and goats in India and their control." IV (6), 655-669. [1934.]

(a) Bhalerao gives a popular account of the structure, life history, pathogenicity, treatment and control of some of the commoner helminths of sheep and goats in India. The paper contains numerous illustrations of the parasites mentioned and concludes with a list of the more general preventive measures. D.O.M.

181—American Journal of Cancer.

a. BULLOCK, F. D., DUNNING, W. F. & CURTIS, M. R.—" Observations on the digestion of the shells of the eggs of *Taenia taeniaeformis*." XX (2), 390-397. [1934.]

(a) Bullock, Dunning and Curtis have succeeded in digesting the shells of *Taenia taeniaeformis* eggs, liberating the onchospheres. They have made observations on the process of digestion and the reactions of the free onchospheres.

The natural intestinal juices of the cat contain the necessary enzyme for digestion but the process does not occur unless the hydrogen-ion concentration is increased. They suggest that the susceptibility of animals to this parasite may be influenced by the hydrogen-ion concentration of the intestinal or body fluids. Onchospheres that were injected directly into the blood stream of rats grew and developed in the tissues of the lungs, though contaminated by bacteria. P.A.C.

182—American Journal of Hygiene.

a. KELLER, A. E. & LEATHERS, W. S.—" The incidence and distribution of *Ascaris lumbricoides*, *Trichuris trichiura* and *Hymenolepis nana* in Mississippi." XX (3), 641-654. [1934.]

(a) In the Mississippi State the incidence of *Ascaris* and *Hymenolepis nana* has changed but little since 1910. In whites the *Ascaris* incidence is 0·9 per cent., in negroes 2·5 per cent. and is fairly evenly distributed. It involves a relatively small number of families for the habits of the people are unfavourable to its acquisition and a large percentage of individuals have only unfertilized eggs in their faeces. *Trichuris* infection is also slight. The *Hymenolepis* eggs occur in the faeces of 0·4 per cent. of whites and 0·17 per cent. of negroes. R.T.L.

183—American Journal of Tropical Medicine.

a. FOSTER, A. O. & CROSS, S. X.—" The direct development of hookworms after oral infection." XIV (6), 565-573. [1934.]

(a) Foster and Cross deal with the controversial question as to whether or not lung migration of larval hookworms is essential to their later development. Experiments designed to determine this are described and the authors conclude that larvae of *Ancylostoma caninum* administered orally to the susceptible normal (dog) host are able to develop directly in the alimentary tract without lung migration and that this is the usual manner of development following oral infection of such a host. J.N.O.

184—Anales de Medicina Interna.

a. NÚÑEZ, J. O. & LÓPEZ, M. C.—" Investigaciones sobre la intradermorreacción aplicada al diagnóstico de la equinococosis." III (7), 609-615. [1934.]

(a) Núñez and López give experimental evidence to show that the Casoni reaction, with Hydatid extract, is not specific as it is a group reaction giving a positive result when any Taenia is present. Antigenic substances exist common to taenias of very different species. They describe a method of extracting an antigen from a fresh intestinal taenia which, they claim, gave results much more marked and specific than those obtained by the Casoni reaction. In an addition at the end of the paper, they call attention to results recently published by Morenas. He used an antigen made from cysts of *T. serrata* and produced results which bear out those of the present authors. P.A.C.

185—Annales de Parasitologie Humaine et Comparée.

a. RUSZKOWSKI, J. S.—" Sur les vers parasites des chimères." XII (6), 482-491. [1934.]
b. WAELE, A. DE—" Etude de la fonction biliaire dans le phénomène de l'évagination chez les cysticerques des cestodes." XII (6), 492-510. [1934.]
c. LIÈVRE, H.—" Données expérimentales sur les agents thérapeutiques de la distomatose à *Fasciola hepatica*." XII (6), 511-520. [1934.]
d. DOLLFUS, R. P., CALLOT, J. & DESPORTES, C.—" Sur une cercaire du groupe *vitrina* et sa métacercaire enkystée." XII (6), 521-527. [1934.]
e. DOLLFUS, R. P.—" Sur quelques *Brachylaemus* de la faune française récoltés principalement à Richelieu (Indre-et-Loire)." XII (6), 551-575. [1934.]

(a) At the Bergen Museum Biological Station at Herdla, Ruszkowski has found a number of helminths parasitizing the fish *Chimaera monstrosa*. These are the cestodarian *Gyrocotyle urna* and the following trematodes: *Octobothrium leptogaster*, *Macraspis elegans*, *Calicotyle kroyeri*, a *Lebouria* sp.,

an immature distome, an encysted metacercaria, and spherical cysts from the heart and gills containing ciliated organisms resembling miracidia. A solitary, unknown nematode was found in the spiral valve. B.G.P.

(b) De Waele has explored the evaginating action of bile upon *Cysticercus pisiformis*. It was known that the cysticerci would evaginate slowly and irregularly in physiological saline at 37·5°C. and at a pH value above 6·0; with the addition of bile the reaction occurs in less than 20 seconds. The author has excluded the ferments, bile pigments, lecithin, cholesterin, fats, fatty acids and soaps as stimuli, and has shown that the bile salts are responsible. Of the decomposition products of the latter, taurine and glycocoll are inactive, cholic acid and the cholates active. Glycocholate, while causing evagination, is toxic to the larva and the fact that this substance is absent in the dog suggests that the nature of the bile salts is the factor determining host-specificity in cestodes. B.G.P.

(c) Lièvre discusses the anthelmintic action of numerous substances against *Fasciola hepatica* both *in vitro* and *in vivo*. Experiments *in vitro* are useful in eliminating inactive drugs, but it by no means follows that the more active drugs will be efficacious *in vivo*: numerous factors intervene such as dilution of the drug below the therapeutic threshold, chemical change, manner of excretion. A promising drug is " Rose de Magdala " which, injected intravenously, is excreted rapidly and exclusively in the bile and which, *in vitro*, is lethal in 1¼ hours in a 0·1 per cent. solution. [It is not clear if this dye has been used *in vivo*.] B.G.P.

(d) Dollfus and his co-workers describe and figure the larval stages of a trematode found in *Helix aspersa* at Richelieu (Indre-et-Loire). Sporocysts, cercariae and metacercariae were found, the latter encysted near or even within the sporocysts. The cercaria belonged to the *C. vitrina-lungocaudata* group and probably belonged to the Dicrocoeliinae, several species of which are known in small animals at Richelieu. B.G.P.

(e) This is the first part of a review (not, as Dollfus points out, a complete revision) of the species of *Brachylaemus* occurring in France. It deals with *B. arcuatus*, *B. advena*, *B. fulvus*, *B. corrugatus*, *B. erinacei* var. *spinulosus*, and a metacercaria from *Helicella ericetorum*; and it discusses the classification of the family Brachylaemidae, with which the family Harmostomidae is in part synonymous. B.G.P.

186—Annales de la Société Belge de Médecine Tropicale.

a. BOURGUIGNON, G. C.—" Les réactions cellulaires tumorales dues à *Schistosoma mansoni* dans le grand épiploon de l'homme." XIV (3), 257-261. [1934.]
b. BERGHE, L. VAN DEN.—" Les schistosomiases humaines et animales au Katanga (Congo Belge)." XIV (3), 313-374. [1934.]

(a) Bourguignon has studied the histo-pathology of the omentum of a child infected with *Schistosoma mansoni*. There were present in the omentum numerous pseudo-tubercles (" veritable endotheliomata ") in all stages from the early mass of round-cells surrounding the egg or eggs to the later fibrous tubercle. The author briefly propounds a theory that the round-cell invasion is due to " irritation alone," whereas the later fibrosis is a response to some antigen liberated from the egg after the shell has been digested. B.G.P.

(b) Van den Berghe has surveyed the schistosomes of man and animals in the Katanga province of the Belgian Congo and here presents his detailed observations in the form of an illustrated memoir, including 15 plates. Chapter I deals with systematics and defines the genus *Schistosoma* and its sub-family and family. Twelve species have been recorded from Africa but only *S. haematobium*, *S. bovis*, *S. mansoni* and *S. margrebowiei* are well defined morphologically. Descriptions are given for these 4, and *S. mattheei* and *S. rodhaini*; the author independently discovered *S. margrebowiei* while he was unaware of Leroux' published description. Chapter II gives the distribution in Katanga of species of *Planorbis*, *Physopsis*, *Bulinus*, *Limnaea* and *Melanoides*, describes the form of the egg-packets and refers to biological characteristics. Natural infection with schistosome cercariae seldom exceeds 2 per cent. of molluscs. The author could not experimentally infect *Physopsis africana* with miracidia from eggs of the *S. mattheei* type. Chapter III deals with human schistosomiasis; *S. mansoni* is widespread and is the autochthonous form, while the urinary form is spreading from Rhodesia in the south. *S. mattheei*, if it is a valid species, is always accompanied by *S. haematobium*. It is difficult to establish the fact of acquired immunity against the human schistosomes. Chapter IV deals with the schistosomes of animals viz., *S. bovis*, common in cattle and sheep, accompanied by (intestinal) *S. mattheei* forms, and *S. margrebowiei* in the lechwe cob. B.G.P.

187—Annals and Magazine of Natural History.

a. BAYLIS, H. A.—"Two new species of the cestode genus *Bertiella*, with a note on the presence of uterine pores." (Ser. 10), XIV (82), 412-421. [1934.]
b. BAYLIS, H. A.—"Notes on four cestodes." (Ser. 10), XIV (84), 587-594. [1934.]
c. SANDGROUND, J. H.—"Description of a species of filariid genus *Litomosoides* from *Glossophaga soricina* (Cheiroptera)." (Ser. 10), XIV (84), 595-599. [1934.]

(a) Baylis differs from Baer (1927) who considered *Bertiella* and *Prototaenia* distinct genera. He describes *Bertiella kapul* n. sp. from *Phalanger maculatus krämeri* from Manus Island, New Britain, and *Bertiella anapolytica* n. sp. from *Rattus rattus brevicaudatus*, Sumatra. Of the ten species hitherto known 8 are from marsupials and 2 from *Galeopithecus*. Hitherto birth-pores have not been described in the Anoplocephalidae. These occur in the new species now recorded and in *B. plastica* and *B. elongata*. R.T.L.

(b) Baylis describes a second tapeworm from the wart-hog *Phacochoerus aethiopicus* under the name *Moniezia mettami* n. sp. It bears a very close resemblance to *M. benedeni* as does also *M. pallida*. *Fuhrmannella transvaalensis* Baer, 1925 also is possibly identical with *M. benedeni*. From the guinea-fowl in Uganda he describes *Raillietina* (*Paroniella*) *woodlandi* n. sp. A re-examination of *Davainea tetragona* var. *lagopodis* Baylis, 1919 has led to the conclusion that it is in all probability a synonym of *R.* (*Paroniella*) *urogalli* (Modeer, 1790). *Unciunia sudanea* Woodland, 1928 is a synonym of *Octopetalum longicirrosum*. R.T.L.

(c) A new species *Litomosoides hamletti* is described by Sandground from *Glossophaga soricina soricina* in Brazil. The generic characters of *Litomosa* and *Litomosoides* are critically discussed. R.T.L.

188—Archiv für Schiffs- und Tropenhygiene.

a. OESTERLIN, M.—"Zur Chemotherapie der experimentellen Schistosomiasis." XXXVIII (10), 433-441. [1934.]

b. OESTERLIN, M.—"Zur Chemotherapie des Katzen-Leberegels (*Opisthorchis felineus*)." XXXVIII (10), 441-445. [1934.]

c. TARASSOW, W.—"Beiträge zum Problem des Kampfes gegen *Diphyllobothrium latum* im Nord-Westgebiet. 2. Mitteilung." XXXVIII (11), 477-486. [1934.]

d. LI, F. C.—"Beobachtung über die Biologie von Oncomelania, des Zwischenwirtes von *Schistosoma japonicum* in China." XXXVIII (12), 519-524. [1934.]

e. EICHHOLTZ, F. & ERHARDT, A.—"Wirkungsbedingungen des Fuadins bei der Opisthorchiasis der Katze." XXXVIII (12), 524-534. [1934.]

(a) Oesterlin experimentally infected white mice with *Schistosoma mansoni* and then tested the therapeutic quality of 17 compounds of arsenic and antimony.

Compound 386 B, containing 18 per cent. arsenic and 20 per cent. antimony was shown to be a useful treatment. The dosage was 0·15 gm. per kg. of body weight. The drug was also valuable for monkeys infested with the parasite. P.A.C.

(b) Oesterlin has used successfully 386 B, a compound containing 18 per cent. arsenic and 20 per cent. antimony against *Opisthorchis felineus* in cats. He is hopeful that it may prove useful against *Clonorchis* in man. P.A.C.

(c) Tarassow gives further information on the distribution of *Diphyllobothrium latum* in the north-west of Russia [see Helm. Abs. Vol. II, No. 66d]. In parts of the Leningrad district, which is unusually well supplied with lakes and rivers, the incidence is as high as 80 per cent. However, 3 villages surveyed in 1931 and again, after a treatment campaign, in 1933 showed reductions in incidence of from 7 to 11 per cent. 405 strobilae examined varied in length up to 17 metres with an average of 8 to 9 m. B.G.P.

(d) Li describes the embryology, larval development and ecology of *Oncomelania*, the carrier of *Schistosoma japonicum*. He points out that the young snails are confined to water: it is only when nearing maturity that they adopt amphibious habits. They prefer water of low salinity, low velocity and high oxygen-content, and soil that is rich in humus and water-bearing. These conditions limit the distribution of *Oncomelania* in China far more than that of many other molluscs. B.G.P.

(e) Eichholtz and Erhardt find that subcutaneous injections of Fouadin at the rate of 0·1–0·4 cc. per Kg. body weight are frequently successful in curing opisthorchiasis in cats. The flukes cease to oviposit under the influence of the drug. Emetine, bismuth and mercury preparations are practically useless when employed singly. When severally combined with Fouadin the results are: (i) Emetine-Fouadin, Fouadin effect reduced or suspended; (ii) Bismuth-Fouadin, tendency to reduce Fouadin effect; (iii) Mercury-Fouadin, effective with toxic doses of Hg, but the cessation of oviposition is only temporary. B.G.P.

189—Archiv für Wissenschaftliche und Praktische Tierheilkunde.

a. WETZEL, R.—"Der Taubenbandwurm *Raillietina bonini* (Mégnin, 1899) und seine Entwicklung." LXVII (2), 154-166. [1934.]
b. IWANOFF, X.—"Über Sommerwunden beim Rinde." LXVII (3), 261-270. [1934.]
c. ENIGK, K.—"Die Widerstandsfähigkeit der Entwicklungsstadien der Strongyliden ausserhalb des Wirtstieres." LXVII (5), 363-376. [1934.]
d. LÜHRS, E.—"Bekämpfung der Leberegel- und Lungenwurmseuche in den an die See grenzenden Gebieten." Mitteilungen VI-VII. LXVII (5), 377-390. [1934.]
e. BUGGE, G.—"Trichinen im Darm." LXVIII (1), 24-32. [1934.]
f. HEMMERT-HALSWICK.—"Trichinen in der Muskulatur." LXVIII (1), 33-41. [1934.]

(a) Wetzel briefly redescribes *Raillietina* (*Skrjabinia*) *bonini* from pigeons and gives an account of its life history in pulmonate snails, as determined by him experimentally. The development of the cysticercoid to the infective stage is described and illustrated; it occupies about 3 weeks in summer. The further development in the definitive host, taking 9–12 days, is also described. The specified intermediaries belong to the families Limacidae, Arionidae and Helicidae. B.G.P.

(b) Iwanoff describes a skin lesion in cattle in Bulgaria similar to the "Summer Sores" in horses, associated with larvae of Habronema. The cattle lesions were also associated with nematodes which the author takes to be larvae, since no eggs or embryos were to be found. These larvae were 4 to 6 mm. long and 75 to 100 μ thick, and similar forms were recovered from 5 per cent. of 780 flies (*Musca domestica* and *Stomoxys calcitrans*) in the locality. Equine Summer Sores are very rare in Bulgaria, however. The cattle sores, which are fully described, are self healing but they seriously detract from the value of the hides as leather. Treatment consists in protecting the sores from flies. B.G.P.

(c) Enigk points out that, as it is so difficult to treat adult or larval horse strongyles with anthelmintics, attention should be given to prophylactic measures. He reviews in some detail previous work on the biology of the extra-corporeal strongyle stages and gives the results of his own experiments designed to kill the eggs and larvae by high and low temperatures, ultraviolet light, and numerous chemical agents, employed respectively on isolated eggs, on faeces containing eggs, and chemical agents on infected pastures. Lethal factors were: 50°C. for 40 minutes, 60°C. for 1 minute, −8°C. for 56 days, 15 minutes ultraviolet radiation (60 minutes in the case of faeces), and 2 per cent. solutions of phenol, creolin, or copper sulphate. The pasture experiments showed that 1 per cent. copper sulphate was more effective than 1 per cent. calcium cyanamide (3 to 8 per cent. survival of larvae as against 25 to 40 per cent.). B.G.P.

(d) Lührs here continues his series of papers on the control of liver-fluke and lungworm on the coastal plains of Oldenburg [see Helm. Abs. Vol. II, Nos. 67a & 226a]. Part VI describes a field experiment in which the drainage ditches were flooded with sea-water and the meadows treated with either unoiled calcium cyanamide or Kainit. The results were good, liver-fluke being reduced by about 75 per cent. Part VII describes a smaller experiment in which the same pasture treatment was used but a drinking pool was treated with sufficient $CuSO_4$ to make a 1/20,000 solution. This

was also effective against both fluke and lungworm. [The rates of application of fertilizers are approximately: Kainit, 6·4 cwt. per acre; calcium cyanamide, 1·6 cwt. per acre.] B.G.P.

(e) Bugge records several observations dealing with the morphology and development of *Trichinella spiralis*, illustrated by microphotographs. He shows that both sexes penetrate the intestinal mucosa, even within 5 hours after being swallowed, where the final moult occurs. Encapsulated larvae can be distinguished as to sex, and the author states that eggs can be found in the uterus at this stage. Among the intestinal adults, copulation occurs at about the 40th hour after infection. Females are about twice as numerous as males. Embryos take the lymphatic route to the heart and can be detected in the thoracic duct between the 6th and 20th days. Experiments with artificial gastric juice show that swallowing intestinal adults would not lead to infection. B.G.P.

(f) The migration and encapsulation of trichinella larvae are described by Hemmert-Halswick. Embryos leave the capillaries in striated muscles, apparently by "organotaxis," and penetrate the fibres. Frequently-used muscles are more heavily parasitized because they receive a proportionately larger blood supply. The young larvae at first migrate along the fibres leaving behind them a hyaline tunnel, apparently secreted by the perimysium; this hyaline tube is the basis of the future capsule. Calcification of cysts usually commences within the substance of the capsule wall, but if the contained larva dies, it may calcify before the capsule. Closed capsules occur at the earliest on the 21st day after infection, and fully-formed thick-walled capsules are found in 35 to 40 days. B.G.P.

190—Archives de l'Institut Pasteur de Tunis.

a. GOBERT, E.—"Note sur la bilharziose en Tunisie." XXIII (3), 348-359. [1934.]

(a) Gobert, during 3 visits to Gafsa, Tunis, in 1932-1934, has investigated the relative importance of, and number of humans infected with, *Schistosoma haematobium* in the different classes of the population, catalogued the localities where *Bullinus contortus* occurs and studied the conditions necessary for the snail's existence in local waters.

More than half the indigenous population of Gafsa is affected to a varying degree. Many infestations are light although all are reckoned as potential sources of infection. The results of all examinations are tabulated. Many springs and irrigation canals harbour *Bullinus* and those examined, their temperatures, and the presence or absence of snails in them, are listed. Similar investigations at the oasis of El Oudiane showed boys up to 15 years old to be particularly infected and *Bullinus* to be present in 3 out of the 19 canals examined. J.N.O.

191—Archives of Internal Medicine.

a. SPINK, W. W.—"Effects of vaccines and bacterial parasitic infections on eosinophilia in trichinous animals." LIV (5), 805-817. [1934.]

(a) Spink shows that in trichinosed guineapigs, the eosinophilia is reduced following secondary infections with virulent *Bacillus tuberculosis*,

Staphylococcus aureus and *Trypanosoma equiperdum*. After repeated injections of typhoid vaccine, however, a rise occurred in the eosinophile count. No change occurred after injection of heat-killed *B. tuberculosis*.

The method of encystment of *Trichinella spiralis* larvae does not appear to be related to the number of eosinophiles circulating in the peripheral circulation. But in animals with superimposed tuberculosis or trypanosomiasis, there is less than normal reaction in the muscles round the encysted larvae, owing to the fact that the host's powers of resistance are devoted primarily to resisting the more virulent and often fatal bacterial or protozoan infection. P.A.C.

192—Archives Médicales Belges.

a. MacARTHUR, W. P.—"Le cysticercose comme cause de l'épilepsie chez l'homme." LXXXVII (7), 101-109. [English summary, pp. 108-109.] [1934.]

(a) Discussing cysticercosis in man due to *Taenia solium* larvae, MacArthur suggests that the infection is more widespread than has been hitherto supposed. Thus an average of 97 men are discharged annually from the British Army with epilepsy and many of these are probably undiagnosed cysticercosis cases. In one of his cases cysticerci were found only in the brain, but usually they are also subcuticular and muscular. If palpable, diagnosis can be made by biopsy; if calcified, by radiology. Of 9 complement-fixation tests made by Hamilton Fairley on known cases, 5 were positive. B.G.P.

193—Archives de Médicine et de Pharmacie Navales.

a. LE MOULT & PIROT.—"Note sur quelques essais thérapeutiques dans l'ankylostomose." CXXIV (3), 348-351. [1934.]

(a) In the treatment of patients infected with *Necator americanus*, Moult and Pirot found tetrachlorethylene completely effective. Essential oil of chenopodium, however, gave very satisfactory results, and is much cheaper. Thymol was the least active. R.H.H.

194—Archivio Italiano di Scienze Mediche Coloniali.

a. LIDDO, S.—"Osservazioni parassitologiche nella regione pugliese." XV (4), 298-300. [1934.]
b. BONA, G. DE.—"Contributo allo studio dell'antimonio e dei soui [suoi] composti in alcune affezioni tropicali." XV (8), 571-576. [1934.]
c. VIGLIETTA, C.—"Ricerche sulla diffusione della Schistosomiasi vescicale fra i bambini indigeni di Derna—Misure profilattiche adottabili." XV (10), 760-766. [1934.]
d. GARIBALDI, M.—"Reperto parassitario intestinale nei malati delle nostre colonie, presentatisi all'Istituto di Patologia Coloniale di Bologna e di Modena." XV (12), 883-893. [1934.]

(a) With the principal object of investigating the presence of hookworm in man in Apulia, Liddo has examined 500 stools and has found the following helminths: trichuris 67, ascaris 41, *Taenia saginata* 8, strongyloides 2, and oxyuris and hookworm one each. B.G.P.

(b) De Bona deals briefly with the therapeutic uses of antimony compounds in schistosomiasis, kala-azar, oriental sore and venereal ulcer. B.G.P.

(c) That there is an endemic focus of *Schistosoma haematobium* in the Derna oasis (Cirenaica) is shown by Viglietta who has found 9 school children infected out of a total of 606 examined. He recommends copper sulphate 5 : 1,000,000 against the carrier, *Bullinus contortus*, propaganda in prophylaxis, and treatment of the infected with antimony compounds. B.G.P.

(d) Garibaldi gives the incidence of intestinal parasites in 89 persons from the Italian colonies Tripolitania (38), Cirenaica (15), Eritrea (7) and Somaliland (29). The helminths are trichuris 8, hookworm 4, ascaris 4, taenia 1. B.G.P.

195—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

a. TALICE, R. V.—" Profilaxis del quiste hidático en el Uruguay." v (2), 246-252. [1934.]

(a) Talice complains that insufficient attention is given, in Uruguay, to the prevention of hydatid. At a " Hydatid Exhibition " on the occasion of Dévé's visit in 1932, not a word about prophylaxis was in the programme. Statistics of the local morbidity and mortality of the disease in man are difficult to come by, but it appears that morbidity at least is on the increase. Reliable statistics are needed, and also a campaign of prophylaxis focussed on the unsatisfactory slaughter-house system. With hygienic municipal abattoirs it would be possible to prevent the access of dogs to infected organs. Propaganda adapted to regional conditions and medico-veterinary collaboration are also desirable. B.G.P.

196—Biochemical Journal.

a. RATNAGIRISWARAN, A. N., SEHRA, K. B. & VENKATARAMAN, K. —" The anthelmintic constituent of the leaves of *Calycopteris floribunda*." XXVIII (6), 1964-1967. [1934.]

(a) These authors have isolated a crystalline substance, " calycopterin," from an acetone extract of the leaves of *Calycopteris floribunda*. Calycopterin, which is stated to be toxic to *Ascaris lumbricoides*, is shown to be a dihydroxytetramethoxyflavone. R.H.H.

197—Boletín de la Asociación Médica de Puerto Rico.

a. RODRIGUEZ MOLINA, R., HOFFMAN, W. A. & ROJAS, E. S.— " Aplicación del tubo duodenal para el tratamiento de la teniasis." XXVI (2), 57-59. [1934.]

(a) Rodriguez Molina and his co-workers have treated 8 cases of taeniasis with oleoresin aspidium and magnesium sulphate emulsified with acacia gum and given by duodenal tube in two doses. The method is described in full. Success was obtained in 3 cases of *Taenia saginata*, 1 of *T. solium* and 1 of *Hymenolepis nana*; in one case the scolex could not be found, and the other two vomited the tube before treatment. B.G.P.

198—Bulletin of the Czechoslovak Academy of Agriculture.

a. ROZSYPAL, J.—" Houby na hád'átku řepném *Heterodera schachtii* Schmidt v moravských pudách." [Pilze in Cysten von *Heterodera schachtii* Schmidt aus mährischen Rübenböden.] x (6/7), 413-422. [1934.]

(a) Rozsypal describes and figures some fungal parasites of the beet strain of *Heterodera schachtii*. *Trichosporium populneum* invading eggs and larvae caused the death of the cyst contents as a whole. *Protomycopsis* sp. and *Olpidium nematodae* were also found parasitizing cysts. M.J.T.

199—Bulletin. Minnesota Agricultural Experiment Station. St. Paul.

a. FENSTERMACHER, R.—" Further studies of diseases affecting moose." No. 308, 26 pp. [1934.]

(a) Fenstermacher has continued his examinations of moose, *Alces americanus*, and records from them the following helminths: *Dictyocaulus hadweni*, *Echinococcus* cysts (lungs); *Cysticercus* sp. (diaphragm); *C. tenuicollis*, *F. magna* (lung); *P. cervi* (rumen); *Moniezia* sp., *Nematodirella longispiculata* (intestine) and *Setaria labiato-papillosa*. An undetermined nematode (possibly a male of the last species) was found in the eye of one animal while another nematode was found in the brain stem of another. T.W.M.C.

200—Bulletin de la Société de Pathologie Exotique.

a. ANDERSON, C. & GOBERT, E.—" Note sur la présence, en Tunisie, de *Schistosoma bovis*. Infection naturelle de *Bullinus contortus*." XXVII (9), 850-853. [1934.]
b. POISSON, H.—" Note sur un cas de Spiroptérose." XXVII (9), 906-907. [1934.]
c. VAN SLYPE, W.—" Sur la détermination des strongylides humains d'après les dimensions de leurs oeufs." XXVII (10), 939-942. [1934.]
d. POISSON, H.—" Note sur une localisation curieuse du *Cysticercus bovis*." XXVII (10), 956-957. [1934.]

(a) Searching for *Schistosoma haematobium* and its carrier in Tunis, Anderson and Gobert found *Bullinus contortus* infected with typical furcocercous cercariae which, however, developed in experimentally exposed mice into *S. bovis*, the adults of which were then found in cattle in the locality. In discussion Brumpt points out that he postulated the presence of *S. bovis* in north Africa in 1929 and also, in the same year, established *B. contortus* as a carrier. B.G.P.

(b) The unusual occurrence of a female *Spirocerca sanguinolenta* in the right mediastinum is recorded from Madagascar by Poisson. R.T.L.

(c) From an examination of eggs from 100 patients in Lomami (Belgian Congo) Van Slype concludes that, to a great extent, the human strongyles can be identified from the dimensions of their eggs.

The separation of *Ancylostoma duodenale* from *Necator americanus* by this method is difficult, but *Ternidens* on the other hand has eggs which are not only larger than those of the other bursate nematodes but have a well marked double contour and clearly defined blastomeres and nuclei. The eggs of *Trichostrongylus* are narrower than those of *Ternidens* and are more

like those of *Necator* in general appearance. The author found a considerable proportion of the inhabitants of Lomami infected with *Ternidens* and *Trichostrongylus* but the number of worms in each case was small. D.O.M.

(d) Poisson considers that an infection of *Taenia saginata* in a patient at Tananarive had been acquired through eating raw liver.

Although the liver is an unusual site for *Cysticercus bovis*, the author concludes that an infection may be obtained from this source and that care should be taken when prescribing raw meats for certain diseases. D.O.M.

201—Bulletin. South Dakota Agricultural Experiment Station.

a. LEBLANC, F., WRIGHT, T. & TAYLOR, J. B.—" Oil of chenopodium and chenopodium plants for the eradication of round worms in swine." No. 283, 20 pp. [1934.]

(a) LeBlanc, Wright and Taylor show that to worm pigs badly infested with *Ascaris lumbricoides* once, soon after weaning, is an economic proposition as it reduces feeding costs. Worming a second time, however, results in increased feeding costs. They find that the use of chenopodium plants as a forage crop to eliminate worms and to reduce grain and supplements necessary for increased body weight is effective. P.A.C.

202—Canadian Journal of Research.

a. MARCHANT, E. H. J.—" The estimated number of nemas in the soils of Manitoba." XI (5), 594-601. [1934.]

(a) Marchant, in an attempt to estimate the number of nematodes in the soils of Manitoba, has analyzed soil samples from 29 districts of the arable portions of the Province representing cultivated and uncultivated soil types. 12 species of 8 genera, none of them new, were isolated and 3, *Dorylaimus regius*, *D. obtusicaudatus* and *Cephalobus subelongatus*, occurred much more frequently than any of the others. No *Heterodera* species were found. The degree of infestation appeared to be negatively affected by either pH or moisture equivalent values of the soil type but was closely related to the organic matter content, irrespective of soil type. The nematode population was somewhat higher in soils of Manitoba than in those of many parts of the United States but considerably lower than in those of North China. J.N.O.

203—Capita Zoologica.

a. KREIS, H. A.—" Oncholaiminae Filipjev 1916. Eine monographische Studie." IV (5), 271 pp. [1934.]

(a) In this imposing monograph Kreis deals in detailed fashion with the nematode subfamily Oncholaiminae Filipjev, 1916, the members of which are marine in habitat.

Following an introduction and an account of the earlier work on the worms belonging to this subfamily, the author deals with the structure and morphology of the various tissues and organs in great detail. Then follow short sections on ontogeny, biology and oecology (including nutrition,

parasites and diseases, and phylogeny) and geographical distribution. This part of the work occupies the first 100 pages. The systematic section which follows occupies 156 pages and deals with 29 genera. There are 135 illustrations in the text, either line or indian-ink wash figures and in most cases each consists of several smaller drawings. There is a table of synonyms, a full bibliography, an index and a map showing geographical distribution. T.G.

204—Chinese Medical Journal.

a. FENG, H. H.—" Cysticercus cellulosae subconjunctivalis. Report of a case." XLVIII (9), 863-868. [1934.]
b. HU, S. M. K.—" An examination of prisoners at Paoshan, Kiangsu Province, for microfilariae of *Wuchereria bancrofti* Cobbold." XLVIII (11), 1143-1145. [1934.]

(a) Feng reports the first case of Cysticercus cellulosae subconjunctivalis observed in the Peiping Union Medical College. In a survey of the literature on ocular cysticercosis less than 20 cases have been reported from China. Data from European countries are given as well as the sites of the parasite in the ocular system. J.N.O.

(b) Hu has examined 146 prisoners in Paoshan, 12 miles north of Shanghai, during September and October, 1933, and found 27 harbouring microfilariae of *Wuchereria bancrofti*. Tables show the groupings according to age and sex and the birth places of positive cases. 17 positive cases were natives of Paoshan district, the remainder, except one, from towns within Kiangsu Province; the prevalence of filariasis in that Province is therefore indicated. J.N.O.

205—Comptes Rendus de la Société de Biologie.

a. LIÈVRE, H.—" Résistance de la grande douve du foie à quelques toxiques." CXV (6), 635-636. [1934.]
b. CALZADA, V.—" Cinq espèces de la famille des Strongylidae observées chez les animaux domestiques de l'Uruguay." CXVII (31), 549-550. [1934.]
c. PALAIS, M.—" Résistance des rats à l'infestation d'*Hymenolepis diminuta* (Rud.)." CXVII (36), 1016-1017. [1934.]

(a) Lièvre has studied the toxicity of various drugs on *Fasciola hepatica* kept in bile or Ringer glucose solution at 37°C.

Using concentrations of 1 per cent. the author found that the times taken to kill the flukes were as follows:—Stovarsol 5 hours; emetine 4 hours; tartar emetic and methylene blue 2½ hours; extract of male fern 1½ hours; quinine 50 minutes; gentian violet 40 minutes; pelletierine 15 minutes and thymol 1½ minutes. D.O.M.

(b) The following strongyles are reported by Calzada from Uruguay for the first time: *Metastrongylus apri*, *M. brevivaginatus*, *Nematodirus filicollis*, *N. spathiger* and *Trichostrongylus vitrinus*. He notes that the female tail is straight in *M. brevivaginatus*, bent in *M. apri*, and he describes in the former a sac-like membrane adhering to the [posterior ?] extremity. B.G.P.

(c) Palais gives experimental evidence that the presence of *Hymenolepis diminuta* in the intestine of a rat, protects the host from further infestation. In one case 4 tapeworms were sufficient to produce this protection. P.A.C.

206—Cornell Veterinarian.

a. WILSON, I. D.—" Sodium chloride vs. cane sugar for parasite egg floatation." XXIV (1), 79-80. [1934.]

(a) Wilson shows that there is little difference in specific gravity between the salt and the sugar solutions used in egg-flotation techniques. The rate of plasmolysis of the salt solution is, however, 2½ times that of the sugar and the latter is therefore preferable when dealing with thin walled eggs and coccidial oöcysts. A factor in favour of the salt solution is its lower viscosity. D.O.M.

207—Department Circular. United States Department of Agriculture.

a. HALL, M. C., PRICE, E. W. & WRIGHT, W. H.—" Parasites and parasitic diseases of dogs." No. 338, 34 pp. [1934.]

(a) As in the original edition issued in 1925, this circular gives a description of the characters and life-history together with the symptoms, treatment and control of the ecto- and endoparasites of the dog and the diseases they produce. The principal new features are the sections on *Dirofilaria immitis*, *Troglotrema salmincola* and canine piroplasmosis, and some data on the parasites of cats. D.O.M.

208—Deutsche Tierärztliche Wochenschrift.

a. EILMANN, H.—" Verkalkte Trichinellen in Bärenfleisch." XLII (39) Schlachthofwesen u. Lebensmittelüberwachung [Supplement No. 20], 633-635. [1934.]

b. MIDDELDORF, R.—" Kombinierte Behandlung der Sklerostomiasis des Pferdes mit Tartarus stibiatus (intravenös) und Tetrasol-Kapseln (per os)." XLII (43), 689–691. [1934.]

(a) Eilmann reports trichinosis in a polar bear from the Hanover Zoo. The cysts were spherical and many of them calcified, calcification beginning at a point on the periphery and extending inwards. Calcareous masses may also occur close to but outside the cyst—presumably a sign of degeneration in the neighbouring muscle cells. The larvae may be also found outside the cyst owing to the rupture of its partially calcified and therefore fragile wall. B.G.P.

(b) Six cases of sclerostomiasis in horses were treated safely and effectively with antimony tartrate, injected intravenously, followed immediately or soon afterwards by oral administration of " Tetrasol " capsules. Three or four treatments, varying in quantity according to the age and condition of the animal, and given at intervals of about 6 days, were found to be sufficient. R.H.H.

209—East African Medical Journal.

a. BAMUNDAGA, D.—" An unusual case of dracontiasis." XI (9), 292-293. [1934.]

(a) Bamundaga records a case of dracontiasis in a 20 years old Madi in which two worms, fused for approximately 2 inches from their extremity, appeared at a pustule over the left scapula and were extracted by the usual process of winding round a stick. J.N.O.

210—Folia Clinica et Biologica.

a. VAZ, Z. & PEREIRA, C.—" On a new oxyurid-worm parasite of *Mus rattus*." VI (1) [Reprint 3 pp.] [1934.]

(a) Vaz and Pereira describe *Heteroxynema muris* n. sp. from the large intestine of *Mus rattus* taken at Mogy das Cruzes, S. Paulo, Brazil. Only female specimens were represented. The new species differs from *H. cuculatum* in possessing large cervical papillae, a smaller tail, and in the relative position of the vulva. J.N.O.

211—Gardeners' Chronicle.

a. BROWN, N. A.—" Control of crown and root rot of paeonies in America." XCV (2460), p. 114. [1934.]

(a) In this article, reprinted apparently complete from the American Paeony Society Bulletin, Brown shows that treatment of paeony roots with hot water at 120° F. for 30 minutes is successful in ridding them not only of the root-knot nematode, *Heterodera marioni*, but also of crown, root-rot and Lemoine disease. T.G.

212—Geneeskundig Tijdschrift voor Nederlandsch-Indië.

a. ELSBACH, L.—" De chirurgische beteekenis van de darmafwijkingen bij Bilharzia Mansoni in Suriname." LXXIV (20), 1261-1276. [English summary, p. 1276.] [1934.]

(a) Elsbach discusses the surgical manifestations of schistosomiasis mansoni in Surinam, where it is very prevalent. He points out that the disease is non-pyogenic, purulence being the sign of complications, and states that he has found no malignancy supervening upon it. He has successfully employed enterostomy in a case of sclerosis coli. B.G.P.

213—Indian Journal of Medical Research.

a. MAPLESTONE, P. A.—" A simple method of growing hookworm larvae." XXII (2), 203-214. [1934.]

(a) The technique for obtaining hookworm larvae published by Maplestone in 1926 has been elaborated and improved. An account is given here of the apparatus and the results obtained are tabulated. By this method the larvae do not migrate from the cultures. It is shown that it is necessary to extract cultures for at least two successive days to be sure that nearly all the larvae in the culture are extracted. R.T.L.

214—Indian Journal of Veterinary Science and Animal Husbandry.

a. BHALERAO, G. D.—" On the nematode causing stomach tumours of the Indian crocodile, *Crocodilus palustris*." IV (3), 247-252. [1934.]

(a) *Multicaecum agile* Wedl, 1862 is recorded for the first time outside Africa. It occurred in a tumour in the stomach of the Indian crocodile in the Punjab. A detailed and illustrated description of the worm is given by Bhalerao. R.T.L.

215—Indian Medical Gazette.

a. RAY, P. N.—" Filarial affections of the male genital tracts." LXIX (10), 554-558. [1934.]
b. DE, M. N. & CHATTERJEE, K. D.—" Streptococcal septicaemia and filarial orchitis." LXIX (10), 558-560. [1934.]
c. YACOB, M. & CHAUDHRI, J. R.—" Hookworm infection in the Punjab. Survey of a rural area in Ambala district." LXIX (12), 669-672. [1934.]

(a) Recent advances in our knowledge of the affections of the male genital tract associated with filarial infection are reviewed. Attention is drawn to a condition of chronic epididymo-orchitis of filarial origin. The ultimate result is suppuration, degeneration or fibrosis. R.T.L.

(b) Generalized infections with *Streptococcus haemolyticus* following upon acute orchitis and funiculitis are very common in India. The aetiological connection between this infection and the occurrence of filariae is not yet clearly understood. R.T.L.

(c) Yacob and Chaudhri give the results of a hookworm survey of two submontane villages in the Siwalik range. 145 persons were examined clinically. 12·7 per cent. of 119 passing hookworm eggs had no symptoms. In 39·5 per cent. the symptoms were moderate; in 47·8 per cent. severe. The incidence of infection was highest amongst the cultivators and remained high up to 40 years of age. R.T.L.

216—Indian Veterinary Journal.

a. IYENGAR, B. D.—" Some observations in the treatment of bovine nasal granuloma." XI (1), 37-41. [1934.]
b. SWAMINATHAN, R.—" A case of schistosomic dysentery in a dog." XI (2), 112-114. [1934.]
c. CHIKMATH, N. C.—" A case of *Filaria medinensis* in a dog." XI (2), p. 120. [1934.]

(a) Bovine nasal granuloma is reported from the Warangal District, Hyderabad State. 22 animals were treated by injection of 2·5 cc. of a 3 per cent. solution of tartar emetic per hundred pound body weight. Owing to digestive disturbances and local irritation Iyengar is of opinion that 1 grain per hundred pound of body weight will be efficacious. R.T.L.

(b) Eggs of *Schistosoma suis* are reported in the faeces of a dog suffering from dysentery in Jubbulpore (North India). R.T.L.

(c) This brief clinical note deals with the treatment by the application of an ointment " Naroocha-Vairi " in a case of guinea-worm in a dog in Kolhapur, India. R.T.L.

217—Journal of Agricultural Research.

a. THORNE, G.—" Some plant-parasitic nemas, with descriptions of three new species." XLIX (8), 755-763. [1934.]

(a) Thorne describes the symptoms of disease produced in fig trees by the root-attacking nematode *Anguillulina pratensis* and gives morphological descriptions and an account of the symptoms caused by three new species of nematodes attacking plants. *Anguillulina pustulicola* n.sp. was found on the stems of an unidentified grass, *A. phyllobia* n. sp. was found in *Solanum elaeagnifolium*, and *Neotylenchus obesus* n. sp. in lesions of alfalfa crowns. M.J.T.

218—Journal of the American Veterinary Medical Association.

a. SHOLL, L. B.—" Unrecognised parasitism in a yearling colt." LXXXIV (4), 651-653. [1934.]
b. FREEBORN, S. B. & BERRY, L. J.—" Observations on the sheep tapeworm, *Moniezia expansa*, in California." LXXXV (5), 611-616. [1934.]
c. BELL, F. N.—" A microfilaria in the blood of cattle." LXXXV (6), 747-759. [1934.]

(a) Sholl gives the full case history of a valuable Percheron colt, with successive diagnoses of hepatitis and enteritis, then (by a second veterinarian) of septicaemia. Finally a consultation was called and a diagnosis given of pyosepticaemia, with the recommendation that the animal be destroyed. At autopsy it was found that a heavy strongyle infection was present, the symptoms probably being due to toxaemia. E.M.S.

(b) An experiment was performed by Freeborn and Berry which showed that, although *Moniezia*-infested lambs weighed as heavily as uninfested lambs, they were of considerably poorer quality. Attempts to produce infestation in various ways were apparently completely unsuccessful. An interesting cysticercoid larva was recovered at autopsy which the authors believe may be a young *Moniezia*. They found that the light infestations with which they had to deal conferred only temporary immunity to reinfestation. They recommend treatment with a drench of copper and nicotine sulphates, and describe attempts to prepare this in an effective powder form. E.M.S.

(c) Bell records microfilariae from cattle in Wisconsin and believes they are the larvae of *Setaria labiato-papillosa*. No periodicity is shown and the incidence of infection is high. The microfilariae are sheathed and measure about 312 μ by 9 μ broad (including the sheath). T.W.M.C.

219—Journal of Comparative Pathology and Therapeutics.

a. TAYLOR, E. L.—" The epidemiology of winter outbreaks of parasitic gastritis in sheep, with special reference to outbreaks which occurred during the winter of 1933-34." XLVII (4), 235-254. [1934.]

(a) Taylor has investigated the epidemic of parasitic gastritis which occurred in sheep at various centres in the southern half of Great Britain during the winter of 1933-34. The principal worms involved belonged to the genera *Trichostrongylus* and *Ostertagia*; *Haemonchus* and *Nematodirus* were not met with to any great extent.

The unusually prolonged period of drought which occurred prior to and during the epidemic is considered by the author to have been an important epidemiological factor. The reduction in the quantity and quality of herbage which resulted had produced a condition of under-nourishment which lowered the resistance of the sheep to parasitic infection. Observations made on sheep under experimental conditions showed that those fed on straw or on hay alone harboured more worms than a similar group on a full ration of hay and cake. A similar experiment brought out the fact that while well-fed sheep threw off their infection no such elimination of parasites was observed in animals fed on hay alone. Another factor which may be concerned with the outbreaks is the closer cropping with a prolonged daily

grazing period necessitated by the lack of herbage during a drought. The storing up of infective material in dried faecal pellets and the subsequent mass development of infective larvae during a period of moist, warm weather may also play an important part.

The author recommends a liberal supply of concentrates when grass is scarce and suggests the use of nitrogenous manures to improve the herbage towards the end of the summer. D.O.M.

220—Journal of the Department of Agriculture of South Australia.

a. GARRETT, S. D.—" The effect of crop rotation on the eelworm (*Heterodera schachtii*) disease of cereals." XXXVII (8), 984-987. [1934.]

(a) Garrett describes the effects of manurial treatments and crop rotation on the strain of *Heterodera schachtii* attacking cereals in South Australia.

Manurial treatments of superphosphate and sulphate of ammonia had no appreciable effect on the eelworm. Where cereals were grown repeatedly in successive years the crops suffered considerable damage but in plots where peas or bare fallow alternated with cereals little damage was caused by the eelworm. M.J.T.

221—Journal of Economic Entomology.

a. HASEMAN, L. & EZELL, H. O.—" The eelworm, *Rhabditis lambdiensis*, a new pest of mushrooms." XXVII (6), 1189-1191. [1934.]

(a) This eelworm is not pathogenic itself but probably acts as a distributor of *Bacterium tolasi* which is destructive to mushrooms. Experiments proved that all the worms were killed at temperatures of 42°C. to 45°C. which is lower than the temperatures reached in the ripening of the manure compost heap. It is concluded, therefore, that the eelworms would not have been introduced with the manure but more probably in the casing soil with which the compost is covered. It was found that treating such soil for 2½ hours at 77°F. with 4 lb. of carbon bisulphide per 100 cubic feet gave a complete kill of all nematodes introduced for the test and it is suggested that preliminary treatment of the casing soil in this manner would prevent the establishment of disease in mushroom beds. T.G.

222—Journal of the Egyptian Medical Association.

a. HASSAN, A. & BETASHE, M.—" *Fasciola gigantica*, an antigen for the skin reaction in human schistosomiasis." XVII (12), 991-993. [1934.]

(a) Hassan and Betashe describe in detail a method of preparing extract of *Fasciola gigantica* which is useful for the intradermal test in human schistosomiasis. This extract is prepared from material always available in large quantities which is not always the case with *S. bovis*. P.A.C.

223—Journal of Helminthology.

a. GOODEY, T.—" On gall-formation due to the nematode *Anguillulina graminis*." XII (3), 119-122. [1934.]
b. THAPAR, G. S. & DAYAL, J.—" The morphology and the systematic position of a new trematode from the intestine of the golden orfe, *Leuciscus idus*, with a note on the classification of the family Allocreadiidae." XII (3), 127-136. [1934.]
c. MARTIN, C. J. & ROSS, I. C.—" A minimal computation of the amount of blood removed daily by *Haemonchus contortus*." XII (3), 137-142. [1934.]
d. TAYLOR, E. L.—" Field experiments on the immunity of lambs to parasitic gastritis caused by a mixed infection of Trichostrongylid nematodes." XII (3), 143-164. [1934.]
e. CLAPHAM, P. A.—" Ascariasis and vitamin A deficiency in pigs." XII (3), 165-176. [1934.]
f. MORGAN, D. O. & OLDHAM, J. N.—" Further observations on the effect of heavy stocking on the worm burden under a system of rotational grazing." XII (4), 177-182. [1934.]
g. TETLEY, J. H.—" The nematodes of sheep in Manawatu District, New Zealand." XII (4), 183-196. [1934.]
h. SOLOMON, S. G.—" Some points in the early development of *Cysticercus pisiformis* (Bloch 1780)." XII (4), 197-204. [1934.]
i. SMEDLEY, E. M.—" Some parasitic nematodes from Canadian fishes." XII (4), 205-220. [1934.]
j. FISHER, A. C.—" A survey of the intestinal helminths of Yakusu, Haut Congo Belge," XII (4), 221-224. [1934.]
k. GOODEY, T.—" *Anguillulina cecidoplastes* n. sp., a nematode causing galls on the grass, *Andropogon pertusus* Willd." XII (4), 225-236. [1934.]

(a) Goodey describes the histological structure of galls caused by *Anguillulina graminis* in the leaves of a species of *Festuca*.

Increase in the size of the cells and in the amount of tissue on the upper side of the leaf, accompanied by increase in size of the vascular bundles and large cavities in the mesophyll tissue in which the worms are contained, are noted. The author is of opinion that gall formation is due to the stimulus of some diffusible secretion given off by the parasite rather than by direct attack on individual cells by the mouth stylet. M.J.T.

(b) A new genus *Cotylogonoporum* near to *Sphaerostoma* in the family Allocreadiidae is established for *C. orfeum* n. sp. from *Leuciscus idus* in India. The generic characteristics include lobed ovary and testes, shape of cirrus, a distinct yolk sac and the peculiar disposition of the uterine coils. R.T.L.

(c) Martin and Ross estimate that the daily egg production per female *Haemonchus contortus* may average 5,000 or more eggs. They have calculated that the average phosphorus content of such eggs is 0·57 mg. per 10^6 eggs. They estimate from these data the minimal blood intake of the worms, basing their calculations on an infestation of 4,000 worms of which 50 per cent. approximately will be females. The blood required to furnish sufficient phosphorus would be 29 c. cm. per day. This is a minimal estimation and takes no account of the blood-sucking activities of the males and does not allow for loss by leakage from punctures or blood extracted in a spirit of wantonness. It also assumes, as the authors point out, that all the phosphorus is incorporated into the eggs. They suggest that double this quantity would

not be an unreasonable estimation and hence that the anaemia which accompanies Haemonchus infestation is to be readily explained by the continual blood loss, there being no need to assume the presence of haemotoxins.

P.A.C.

(d) Taylor found that lambs placed on infective pasture early in life acquired an immunity to parasitic gastritis caused by Trichostrongylid worms.

An immunity thus acquired became firmly established in 18 weeks and enabled the animals to withstand repeated reinfestation under conditions which resulted in the death of unprotected lambs in less than 7 weeks after exposure to infection. In addition to the resistance against the injurious effects of parasitism, the immunity had an inhibitory influence on egg laying and on the development of the worms. The latter was most marked in the case of *Haemonchus contortus* and *Nematodirus filicollis*. The author considers that the symptoms of parasitic gastritis are due to the production of toxins and the irritation of the mucosa caused by the worms rather than to the abstraction of blood from the host. D.O.M.

(e) From experiments on pigs Clapham has been unable to show that the vitamin A content of the diet has any appreciable effect on the course of infestation with *Ascaris lumbricoides*. P.A.C.

(f) Morgan and Oldham give the results obtained from the second year's observations on the effect of heavy stocking on the worm infestation in sheep.

Five of the six sheep under observation died during the experimental period and, as in the previous year, post-mortem findings showed that *Chabertia ovina* and the smaller Trichostrongyles appeared to be the commonest species picked up during the winter months. A surprising difference in the relative frequency of the species harboured was observed even in sheep grazing on the same plots and in the three experimental animals the predominant species differed in each case. The authors conclude that the winter months are the most critical to sheep on heavily contaminated pastures and suggest that nutritional factors and adverse conditions may have some bearing on these results. D.O.M.

(g) Tetley records the incidence and relative frequency of the 25 species found in his survey of the nematodes of sheep in Manawatu District, New Zealand.

The range of species shows a similarity with that found in sheep in Great Britain and Australia which are the countries of origin of the New Zealand stock. Members of the genera *Ostertagia*, *Trichostrongylus*, *Nematodirus* and *Cooperia* were the most common species met with while *Haemonchus contortus* and *Oesophagostomum columbianum* were less frequent than they are in tropical countries. The heavy stocking of permanent pastures with continuous grazing throughout the year, as practised in the district, results in the rapid multiplication of the parasites. D.O.M.

(h) Solomon describes the early development of *Cysticercus pisiformis* in the rabbit and the reactions of the liver to the invading larvae. Onchospheres migrate from the stomach via the portal vessels to the liver and

after further development wander out into the body cavity at the end of the second week after infection. Then follows the breaking down of the parenchyma in the centre of the worm to form the bladder and also the invagination in the cephalic region. The division of the larva into two equal parts as described by Moniez was not observed in any of the stages of development studied by the author. D.O.M.

(i) Nematode parasites are comparatively rare in Canadian fishes. Smedley records *Metabronema wardlei* n. sp., *Dacnitoides cotylophora* Ward and Magath, *Contracaecum magnum* n. sp. and *C. melanogrammi* n. sp. R.T.L.

(j) At Yakusu hookworm infection is relatively low and *Ascaris lumbricoides* very high. Seven cases of *Hymenolepis diminuta* are noted while *H. nana* was not encountered once. *Oxyuris vermicularis*, *Trichuris trichiura*, Strongyloides and Hydatid are mentioned. R.T.L.

(k) Goodey gives a detailed account of the morphology and life-cycle of, and symptoms caused by, *Anguillulina cecidoplastes* n. sp., a parasite of *Andropogon pertusus*, a common pasture grass in S. India.

The parasite causes galls on the leaves of the host. The structure of these galls is described and their probable mode of development in response to irritant substances secreted by the parasite is discussed. M.J.T.

224—Journal of the Ministry of Agriculture.

a. PETHERBRIDGE, F. R.—"Beet sickness present in England." XLI (9), 825-827. [1934.]

(a) Petherbridge records the occurrence of *Heterodera schachtii* attacking sugar-beet in Britain.

The infection occurred in three fields in the Isle of Ely. In one field the symptoms of beet-sickness were clearly shown by the crop. Sugar beet had frequently been grown on the infected fields which had previously been cropped very frequently with mangolds, another host plant of the beet-strain of *Heterodera schachtii*. The danger of such repeated croppings is emphasized. M.J.T.

225—Journal of Oriental Medicine.

a. HIYEDA, K.—"Distribution of parasites and parasitic diseases in Manchoukuo." XXI (4), 39-56. [1934.]
b. YUGAWA, T.—"Trichina found in dogs in South Manchuria." XXI (5), p. 88. [1934.]

(a) Hiyeda has carried out a survey of the distribution of human parasitic diseases, protozoan and helminthic, in Manchoukuo and summarizes the results of the investigations. A brief and general account of the important parasitic diseases of China proper is first given.

In Manchoukuo the principal helminth parasites are: *Ascaris lumbricoides*, present in 74 per cent. of the human population; *Ancylostoma* and *Necator*, equally incident, but varying in distribution with the latitude, infections being much more frequent in the south; *Trichocephalus*, widely distributed

over Manchoukuo and reaching 80 per cent. incidence or more in Dairen; *Enterobius*, widely spread but without accurate details of its incidence; *Clonorchis sinensis*, found twice in Mukden and Liaoyang and in 5 per cent. of stray dogs. Paragonimiasis, schistosomiasis and fasciolopsiasis have not yet been found in Manchoukuo. Investigating the rôle played by vegetables in the spread of infections the author considers lettuces to be the most dangerously contaminated. J.N.O.

(b) Yugawa has detected trichinosis in 14 out of 179 (7·95 per cent.) pariah dogs examined in Liaoyang and Mukden, South Manchuria. In the absence of complete adults the forms found were presumed identical with *Trichinella spiralis*. Infection experiments with dogs, rabbits and albino rats were successful. Details of precipitation and skin reactions with extract of the parasites, as diagnostic methods for trichinosis, are promised. J.N.O.

226—Journal of Parasitology.

a. AMERICAN SOCIETY OF PARASITOLOGISTS.—"Program and abstracts of the tenth annual meeting." xx (6), 319-341. [1934.]

(a) The programme contains the following papers of helminthic interest: (i) D. A. Porter & G. F. Otto "The guinea-pig nematode, *Paraspidodera uncinata*"; (ii) G. L. Graham & D. A. Porter "Strains of *Nippostrongylus muris* and their behavior in various strains of rats"; (iii) J. E. Ackert & J. H. Wilmoth "Resistant and susceptible strains of White Minorca chickens to the nematode, *Ascaridia lineata* (Schneider)"; (iv) E. C. Faust "Filarial infection in the marmosets (*Saimiri ōrstedii ōrstedii* and *Leontocebus geoffroyi*) in Panama"; (v) H. J. Van Cleave "Observations on the status of certain genera of Acanthocephala, chiefly from birds"; (vi) J. E. Guberlet "Some ecto-parasitic trematodes of Puget Sound fishes"; (vii) R. S. Kelley "Variations in *Plagitura salamandra*"; (viii) G. W. Hunter III & W. S. Hunter "The life cycle of the yellow grub of fish, *Clinostomum marginatum* (Rud.)"; (ix) A. E. Woodhead "The germ cell cycle in trematodes"; (x) L. A. Spindler "The effect of daily administrations of ferrous sulphate and copper sulphate to pigs on their resistance to infection with the swine nodular worm, *Oesophagostomum dentatum*"; (xi) L. A. Spindler "Resistance of rats to superinfection with *Nippostrongylus muris*, following administration of adult worms by duodenal tube"; (xii) B. Schwartz & J. E. Alicata "Development of *Ancylostoma caninum* following percutaneous infection"; (xiii) W. H. Krull "A note on the life history of a trematode, *Eustomos chelydrae* MacCallum, 1921"; (xiv) L. J. Thomas & A. D. Johnson "Experiments and observations on the life cycle of *Halipegus occidualis* (Stafford, 1905)"; (xv) C. H. Alvey & W. E. Martin "The lymph system of *Sphyranura oligorchis*"; (xvi) C. H. Alvey & K. E. Kintner "*Taenia asiota* n. sp. from the screech owl"; (xvii) G. W. Hunter III & W. S. Hunter "The life history of the black grub of bass, *Crassiphiala ambloplitis* (Hughes)"; (xviii) K. B. Kerr "Immunity in rabbits against one of its cestode parasites, *Cysticercus pisiformis*"; (xix) O. R. McCoy "The development of adult Trichinae in chick and rat embryos"; (xx) E. C. Faust "The interrelations of parasite and host-tissue in experimental *Strongyloides* infection"; (xxi) A. C. Chandler "Experiments on the passive transfer of immunity

to an intestinal nematode infection, and its bearing on local immunity"; (xxii) E. B. Cram "Species of *Capillaria* parasitic in the upper digestive tract of domestic and game birds"; (xxiii) G. R. La Rue & A. M. Fallis "*Alaria canis* n. sp. (Alariidae), a trematode parasite of the dog in northern Ontario"; (xxiv) W. E. Martin "*Acanthatrium molossidis* n. sp. from the bat *Molossus sinaloae*"; (xxv) W. E. Martin "*Cercariaeum nephroplexis* n. sp. from *Helix albolabris* and a redescription of *Cercariaeum vagans* (Leidy 1850) Diesing"; (xxvi) A. E. Woodhead "Spermatogenesis in the gasterostomes"; (xxvii) A. E. Woodhead "Reproduction in *Leucochloridium*"; (xxviii) H. W. Stunkard "The life cycle of *Typhlocoelum cymbium*"; (xxix) H. W. Stunkard "The life history of *Himasthla quissetensis* (Miller & Northup, 1926)"; (xxx) S. X. Cross "Iron conservation and utilization by dogs with hookworm anemia"; (xxxi) J. E. Alicata "Parasites found in an examination of 150 junior high school students in the District of Columbia."

Abstracts are given for all of these titles except Nos. (iv) and (ix). B.G.P.

227—Journal of the Philippine Islands Medical Association.

a. GALLARDO, V.P.—"Anthelmintics in general practice." XIV (9), 350-353. [1934.]
b. ALBERT, J. & PAULINO, P.—"Mimicry in ascariasis." XIV (12), 463-469. [1934.]

(a) Gallardo considers that the helminth parasite as an aetiological factor frequently produces complex symptoms simulating various common or uncommon diseases which may render diagnosis difficult. He therefore considers it wise to begin all treatment, whatever may be the first symptoms, with an anthelmintic, except when there is formal and absolute contra-indication to its use. Records of 6 cases are given in support of the argument. J.N.O.

(b) Albert and Paulino give details of the clinical history and physical findings in 8 cases of heavy *Ascaris* infestation. The different clinical manifestations observed were simulated meningitis, profuse melena, profuse haematemesis, symptoms of acute severe toxaemia, uncontrollable, severe abdominal pain resistant to repeated anthelmintic treatment and, in 2 cases, a palpable, rounded, slightly movable mass due to *Ascaris* which disappeared after proper anthelmintic treatment. Ascariasis, associated with other diseases, may aggravate the condition or be a contributory factor to rapid death of a patient. J.N.O.

228—Journal of the Tennessee Academy of Science.

a. HARWOOD, P. D.—"Notes on Tennessee helminths. I. *Kalicephalus tennesseensis* n. sp. (Nematode)." IX, 192-194. [1934.]

(a) Harwood describes *Kalicephalus tennesseensis* n. sp. from the duodenum of *Coluber constrictor constrictor* taken from the Narrows of the Harpeth River near Nashville, Tenn. It resembles most closely *K. philodryadus* Ortlepp, 1923, which, however, is much larger, has longer spicules and gubernaculum and a differently shaped female tail. A key to the well described forms from North American hosts is given. J.N.O.

229—Journal of Tropical Medicine and Hygiene.

a. AZMY, S., GAAFAR, M. & NOSHOKATI, H.—" Observations on anaemia in Egypt." XXXVII (20), 311-316. [1934.]
b. CAWSTON, F. G.—" Neostam in the treatment of bilharzia disease." XXXVII (20), 316-317. [1934.]
c. NORONHA, A. J.—" A case of *Hymenolepis nana* infection." XXXVII (21), 325-326. [1934.]
d. CAWSTON, F. G.—" The treatment of bilharzia diseases by antimonium potassium tartrate, with the consideration of claims advanced for other remedies." XXXVII (24), 385-386. [1934.]

(a) Azmy *et al.* have studied the aetiological factors, clinical picture and treatment in 150 cases of anaemia in Egypt. They group the cases as those with pure infections of *Ancylostoma*, *Bilharzia haematobia*, *B. mansoni*, *Ascaris*, with mixed infection, splenomegaly, pellagra with or without parasites, chronic dysentery, and achlorhydric anaemia free from parasites. Treatment giving the most gratifying results was a preparation of reduced iron, in doses of 2 gm. t.d.s. after meals. This did not give rise to gastro-intestinal disturbance and, when combined with 2 to 8 cc. HCl in water, gave better results in cases showing diminished or absent acidity in the gastric juice. Anaemia recurs if the administration of iron is stopped so that anthelmintics are essential. J.N.O.

(b) Cawston has tested " Neostam " in the treatment of Bilharzia infection and found repeated doses of 0·4 g. given to a juvenile aged 17 and weighing under 120 lb. caused no toxic effects but produced a decided improvement in his general condition from the start. The drug is compared with Fouadin and freshly dissolved antimonium potassium tartrate. J.N.O.

(c) Noronha records a case of *Hymenolepis nana*, apparently the first from Poona, in which the tapeworm was associated with dysenteric symptoms. The case, a boy, had never been out of India. B.G.P.

(d) Cawston discusses the treatment of bilharzia diseases by antimonium potassium tartrate with notes on the technique of administration and the dosage. As treatment of a patient demands the complete eradication of both male and female worms the author avers that some methods at present in use are far from satisfactory and gives some consideration to the claims advanced for other remedies such as Neostam, Antimosan, Neo-Fouadin and Fouadin. J.N.O.

230—Keijo Journal of Medicine.

a. FURUYAMA, T.—" On the morphology and life-history of *Philometra fujimotoi* Furuyama, 1932." V (3), 165-177. [1934.]

(a) Furuyama gives a morphological description of *Philometra fujimotoi* from the fresh-water fish *Ophiocephalus argus* from the vicinity of Keijo, Chosen, Japan. Adult females were found in the dorsal and ventral fins and rarely in the caudal or anal fins ; the male was recovered from the abdominal cavity of the fish.

The eggs are produced in September and continue to develop until early summer when infective larvae result. The viviparous females then leave the fins of the host, rupture, and liberate their larvae. These die in water in

7 to 10 days, at room temperature, without any sign of further development unless ingested by the intermediate host, viz., *Cyclops leuckarti*, *C. serrulatus*, *C. signatus*, *C. strenuus* and *C.* sp. Within the *Cyclops* the nematode penetrates the gut wall, attains the body cavity and there undergoes partial development. Feeding experiments showed that a second intermediate host was unnecessary, for development was completed within the final host. Young males and females appear in the body cavity of the fish and the females migrate to the fins in September or October. The fate of the males is unknown. A tabular review of the species of *Philometra* is given. J.N.O.

231—Lancet.

a. FISHER, A. C.—"Acriflavine for schistosomiasis." CCXXVII (5801), p. 1017. [1934.]
b. LANE, C.—"The periodicity of *Microfilaria bancrofti*." CCXXVII (5809), 1437-1441. [1934.]

(a) In reply to criticisms of his acriflavine treatment of schistosomiasis [see Helm. Abs., Vol. III, Nos. 81a, 154b, d & e] Fisher points out that he did not claim a cure since his cases had been under observation only a few weeks. After observation for 3 to 6 months it can now be said that half of the cases show a definite cure. The failure of some Cairo workers to obtain results is the more surprising since El Diwany has had successes with this drug in Egypt. B.G.P.

(b) Clayton Lane criticizes the views put forward by Low & Manson-Bahr [see Helm. Abs., Vol. III, No. 154c] in opposition to the theory of cyclical parturition in *Wuchereria bancrofti*.

He accuses them of undue use of assumption, and points out that the approximately equal daily count of microfilariae favours one theory no more than the other. Lane claims that Manson's classical case (death, by day, from prussic acid revealed embryos in great vessels) rests on the assumption that there is no appreciable flow of lymph after a cyanide death, an assumption which has since been shown incorrect. He dismisses the assumption of adhesion by microfilariae to the great vessel walls as improbable, and analogies with *Dirofilaria immitis* as inexact, and concludes that O'Connor's numerous sections of adult females (excised at known times of day) show such conditions in the uteri as the cyclical theory requires. B.G.P.

232—Lingnan Science Journal.

a. YEN, C. H.—"Notes on the periodicity of *Wuchereria bancrofti* Cobbold in Shanghai region." XIII (4), 607-613. [1934.]

(a) Yen has studied the periodicity of *Wuchereria bancrofti* in two filarial cases in the Shanghai region. 2-hourly examinations in each of three 24-hour periods were made. In one case, showing a heavy count, although there was a marked increase in the number of microfilariae at night they did not disappear entirely from the peripheral blood during the daytime. In the other case, showing a light count, microfilariae were completely absent from the peripheral blood between 7 a.m. and 5 p.m. Also the maximum number of microfilariae in the heavily infected patient, who fell asleep earlier than the light case, appeared earlier in the evening than in the lightly infected patient. J.N.O.

233—Magazin de Parasitologie de l'Institut Zoologique de l'Académie de l'URSS.

a. FILIPJEV, I. N.—" Miscellanea Nematologica. I. Eine neue Art der Gattung *Neoaplectana* Steiner nebst Bemerkungen über die systematische Stellung der letzteren." IV, 229-240. [1934.]

(a) Filipjev describes a new species of the nematode *Neoaplectana*, under the name of *N. feltiae*, parasitic in the body-cavity of caterpillars of the Noctuid moth, *Feltia segetum* Schiff.

The infected caterpillars, which came from the Votjak region in east Russia, had a glossy appearance, were motionless and eventually died from the attacks of the nematodes. The latter were present in large numbers and each caterpillar contained between 100–200 females, about 30 males and many thousands of larvae. A detailed description is given of the morphology of the adults of both sexes and of the larvae. In discussing the systematic relationships of the worms Filipjev considers that *Neoaplectana* should be placed in the Order *Anguillulata* rather than in the Order *Oxyurata*. The paper is illustrated with several line drawings. T.G.

234—Malayan Medical Journal.

a. STRAHAN, J. H. & NORRIS, V. H.—" Notes on the incidence of filariasis in Province Wellesley North." IX (2), 44-47. [1934.]

(a) A focus of human filariasis in the north-west corner of Province Wellesley North (Malay), where elephantiasis is common, has been found by Strahan and Norris. The microfilariae, which shows a slight nocturnal periodicity, has been independently diagnosed (by both Leiper and Brug) as *Mf. malayi*. The common mosquitoes are *Culex sitiens* and *C. fatigans*, and *Anopheles vagus*, *A. barbirostris* and *A. hyrcanus* are also present; none have yet been found infected. B.G.P.

235—Mededeelingen van den Dienst der Volksgezondheid in Nederlandsch-Indië.

a. RODENWALDT, E.—" *Filaria malayi* im Delta des Serajoe. II." XXIII (1), 21-43. [1934.]
b. RODENWALDT, E. R. K.—" Jaarverslag van het Geneeskundig Laboratorium over 1933. Parasitologie. 1. *Filaria malayi* en *bancrofti*. 2. *Trichinella spiralis*." XXIII (2/3), 48-53. [1934.]
c. LANGEN, C. D. DE.—" The origin of the anaemia in ankylostomiasis." XXIII (2/3), 135-157. [1934.]
d. RODENWALDT, E.—" *Filaria malayi* im Delta des Serajoe. III." XXIII (4), 194-212. [1934.]

(a) Rodenwaldt has found that the eggs of *Mansonia* spp., carriers of *Filaria malayi*, are laid on the under-side of leaves of the aquatic plant *Pistia stratiotes*.

It is briefly mentioned that fully developed filarial larvae were found in the proboscis of *Anopheles hyrcanus* which had been raised from the larval stage and eleven days after they had been fed on a person harbouring *F. malayi*. The following mosquitoes caught on human beings were found to be infected:

Mansonia annulifera 73·6 per cent. of 91, *M. uniformis* 66·6 per cent. of 12, *M. indiana* 71·4 per cent. of 7, and *Anopheles hyrcanus* 88·9 per cent. of 18.

H.M.

(b) 1. Notes on transmitters, distribution and identification of *Filaria malayi* and *F. bancrofti*. 2. The authors record satisfactory results in the diagnosis of *Trichinella* infestation by intradermal tests with antigen prepared according to Augustine and Theiler. It is desirable to confirm positive reactions by means of the precipitation test which is less liable than the intradermal test to give a group reaction. H.M.

(c) De Langen contributes a very instructive article on the haematology of ancylostomiasis.

The author discusses the most important theories on the origin of anaemia in ancylostomiasis and concludes that the loss of blood alone is not the sole causative factor. It is concluded definitely that there is not a toxin which causes increased blood destruction. It has not been fundamentally proved that the blood-forming organs are paralyzed by a toxic factor, but this remains to be investigated. A study of the lipocytic coefficient of Mayer and Schaeffer and the fact of its dependence on the diet, leads the author to conclude that the diet plays a very important part in the development of anaemia in any case of ancylostomiasis. Fats appear to be the most important ingredients of the diet in this connection and the disturbance of fat resorption through the intestinal mucosa, resulting from the overstimulation of the mucosa by the worms, is considered to be an important additional factor. H.M.

(d) Rodenwaldt suggests that *Filaria malayi* might be controlled to some extent by eradicating Pistia from the swamps.

An attempt to differentiate between elephantiasis patients without *Mf. malayi* in the blood and persons infected with *Mf. malayi* by means of intracutaneous injections of antigen made from *Dirofilaria immitis* produced no definite result. Equally strong reactions were obtained in both groups.

H.M.

236—Medizinische Klinik.

a. BRANDT, W.—" Über die Wirkung von Kupfer auf Eingeweidewürmer." XXX (42), 1399–1400. [1934.]

(a) From experiments *in vitro* Brandt shows that " Cupronat," in suitable amount, acts upon the smooth muscle cells of intestinal worms, causing paralysis and precluding the possibility of migration. For this reason, and because it is not toxic to man, Brandt suggests that Cupronat would be better than Santonin as an anthelmintic for expelling ascarids and other intestinal worms. R.H.H.

237—Memorias do Instituto Oswaldo Cruz.

a. FREITAS, J. F. TEIXEIRA DE & LENT, H.—" Novo nematodeo da subfamilia *Heligmosominae* Travassos, 1914, parasito de *Agouti paca* (L.) : *Avellaria avellari* n. g., n. sp." XXVIII (4), 577-583. [1934.]

(a) Teixeira de Freitas and Lent describe a new trichostrongylid worm, *Avellaria avellari* n. g., n. sp., from the spotted cavy, *Agouti paca* (L.). They discuss briefly Neveu Lemaire's recent classification of the family,

transferring *Oswaldonema* Travassos, 1927 from the Trichostrongylinae to the Heligmosominae. They also bring into these two sub-families several other recent genera. *Avellaria* n.g. is referred to the Heligmosominae and a table is appended of the comparative characters of all the genera of this sub-family. They find the size and shape of the spicules an unsatisfactory basis for the classification of the group, due to the existence of transitional forms. E.M.S.

238—Münchener Medizinische Wochenschrift.

a. OXENIUS, K.—" Zur Behandlung des Pruritus ani bei Oxyuriasis." LXXXI (51), 1977-1978. [1934.]

(a) Oxyuris is probably not in itself harmful, but the pruritus ani which it provokes can be very irritating. Oxenius has found that powdering the anus with pure Anaesthesin is an ideal symptomatic treatment and, since irritation and therefore scratching cease, it is also a prophylactic against re-infection. In refractory cases he uses Anaesthesin 1 part, made up to 10 with Vasenoloform powder—a formalin compound. B.G.P.

239—New Zealand Journal of Agriculture.

a. MARSHALL, D.—" Some diseases of pigs." XLIX (2), 65-71. [1934.]

(a) Marshall noted that the internal parasites of the pig are not of great importance in New Zealand. *Hyostrongylus rubidus* is stated to have caused the death of mature pigs, principally sows, while Hydatid in large numbers has occasionally been responsible for unthriftiness and death in young pigs. R.T.L.

240—North American Veterinarian.

a. KRULL, W. H.—" The intermediate hosts of *Fasciola hepatica* and *Fascioloides magna* in the United States." XV (12), 13-17. [1934.]

(a) Krull presents a summary of the known carriers of *F. hepatica* and *F. magna* in the United States together with their distribution. The carriers for *F. hepatica* are : *Galba bulimoides* and v. *techella*, *G. cubensis*, *G. ferruginea*, *Fossaria modicella*, *Pseudosuccinea columella* and *Lymnaea traskii* (first record), and for *F. magna* are : *G. bulimoides techella*, *F. modicella* and v. *rustica*, and *P. columella*. *L. traskii*, which is closely related to *L. palustris* and is easily mistaken for it, has been infected in the laboratory and apparently becomes infected only when very young. T.W.M.C.

241—Onderstepoort Journal of Veterinary Science and Animal Husbandry.

a. ORTLEPP, R. J.—" Echinococcus in dogs from Pretoria and vicinity." III (1), 97-108. [1934.]

(a) As a result of an examination of material found in dogs from the vicinity of Pretoria, Ortlepp has made a comparative study of several species of the genus *Echinococcus*.

The specimens obtained from these dogs are identified as *E. granulosus*, of which a detailed description is given together with that of a new species, *E. lycaontis* from *Lycaon pictus*. The author also creates a new species, *E. cameroni* to include specimens from the English fox on the ground that they show 4 to 6 segments while 3 to 4 are normally found in *E. granulosus*. A table giving the principal measurements of the six known species of *Echinococcus* is appended. D.O.M.

242—Parasitology.

a. FAUST, E. C. & TANG, C. C.—" A new species of *Syngamus* (*S. auris*) from the middle ear of the cat in Foochow, China." XXVI (4), 455-459. [1934.]
b. CAWSTON, F. G.—" Evidence of the successful destruction of schistosomes." XXVI (4), 460-462. [1934.]
c. McINTOSH, A.—" A new blood trematode, *Paradeontacylix sanguinicoloides* n.g., n. sp., from *Seriola lalandi* with a key to the species of the family Aporocotylidae." XXVI (4), 463-467. [1934.]
d. DOBROVOLNY, C. G. & ACKERT, J. E.—" The life history of *Leidynema appendiculata* (Leidy), a nematode of cockroaches." XXVI (4), 468-480. [1934.]
e. ROBINSON, V. C.—" On a collection of parasitic worms from Malay. I. Nematodes (Superfamilies Ascaroidea and Oxyuroidea)." XXVI (4), 481-488. [1934.]

(a) Faust and Tang found that 22·9 per cent. of the cats obtained from the vicinity of Foochow, China, harboured a new species of *Syngamus* (*S. auris*).

The worms occupied one or both chambers of the cavum tympani and as many as 6 pairs were recovered from one ear. The vulva is situated further posteriorly than in any other species of *Syngamus* and differences were also noted in the buccal capsule and in the dorsal ray of the bursa. D.O.M.

(b) Cawston considers that the degree of eosinophilia affords the most reliable test for diagnosing the presence of a schistosome infection and for estimating the effects of treatment.

Absence of ova from the urine or faeces cannot be accepted as an indication of the absence of parasites since infections may include a preponderance of males or of undeveloped females. The author concludes that a fall in the eosinophils during treatment together with a general improvement in the patient's health are strong indications that the worms are being destroyed. D.O.M.

(c) McIntosh erects a new genus *Paradeontacylix* of the family Aporocotylidae with a new species *P. sanguinicoloides* as type. A single specimen of the fluke was obtained from the blood vessels of the gills of *Seriola lalandi* caught off Miami, Florida. The new genus is closely related to *Deontacylix* from which it differs in having a medial ovary and an entirely postovarial uterus. The author considers that *Aporocotyle odhneri* Layman, 1930 should also be included in his new genus. D.O.M.

(d) Dobrovolny and Ackert, from an examination of 259 cockroaches (*Periplaneta americana*) collected at Manhattan, Kansas, found that 86·3 per cent. were infected with one or both of the oxyurids, *Leidynema appendiculata* and *Hammerschmidtiella diesingi*. The highest incidence was found among immature cockroaches but adult females carried the heaviest infestations.

Studies on the life-history of the parasites showed that the eggs, incubated at 37°C. in Locke's solution, developed active embryos in 20 to 36 hours and that the resting embryonated stage, which is the infective stage, was reached in 4 to 7 days. The eggs do not hatch, and transmission was found to be direct. D.O.M.

(e) The material examined by Robinson was collected by G. B. Purvis, F.R.C.V.S., from *Python reticulatus* and *Galeopithecus volans peninsulae* in Malay.

Five species were found in the intestine of the python and two of these, *Ophidascaris baylisi* and *Polydelphis bicornuta*, are new to science. Four species are described from the large intestine of the lemur including three new forms, *Auchenacantha parva*, *A. purvisi* and *A. magna*. The genus *Hoepplius* Chu, 1931 is considered to be identical with *Auchenacantha* Baylis, 1929. D.O.M.

243—Peking Natural History Bulletin.

a. HSÜ, H. F.—" On some *Kalicephalus* species from China with a discussion of certain systematic characters of the genus." VIII (4), 375-389. [1934.]

(a) Hsü gives what he believes to be the first report of *Kalicephalus* from China. He describes the following species :—*K. chungkingensis* n. sp. (near *K. agkistrodontis*, *K. gongylophis*, *K. longis*, *K. radicis*), *K. gongylophis* Maplestone (first description of male), *K. naiae* Maplestone, *K. indicus* Ortlepp, *K. nankingensis* n. sp. (near *K. subulatus* and *K. rectiphilus*), *K. sinensis* n. sp. (near *K. rectiphilus* and *K. colubri*). All six species are figured in a series of comparative plates. Because of the great number and similarity of the species of *Kalicephalus*, the taxonomic value of the various morphological characters is discussed in some detail. E.M.S.

244—Philippine Journal of Science.

a. TUBANGUI, M. A., BASACA, M. & PASCO, A. M.—" Hexylresorcinol as an anthelmintic. Its efficiency against the intestinal parasites of man." LIV (4), 473-481. [1934.]

(a) Tubangui, Basaca and Pasco have used hexylresorcinol under field conditions in the Philippine Islands. In the form of sugar-coated pills the drug was more effective than in gelatine capsules and was unaffected by climatic conditions. A saline purge 24 hours after administration increased its efficiency. After single treatments 82–85 per cent. *Ascaris* and 78 per cent. of Hookworms were removed. The drug seems to be effective against *Trichuris* and *Enterobius vermicularis* but not against *Taenia saginata*. P.A.C.

245—Phytopathology.

a. GODFREY, G. H., OLIVEIRA, J. & HOSHINO, H. M.—" Increased efficiency of chloropicrin for nematode control with better confinement of the gas." XXIV (12), 1332-1346. [1934.]

(a) Godfrey, Oliveira and Hoshino report the results obtained in laboratory, greenhouse and small plot tests with chloropicrin as a means of controlling the nematode *Heterodera marioni*.

Conditions necessary for the success of the treatment are :—(i) complete decay of roots harbouring nematodes prior to the application of the chloropicrin ; (ii) good tilth and absence of excessive moisture ; (iii) rates of application of from 250 to 400 lbs. per acre ; (iv) points of application not more than 18 inches apart ; (v) efficient confinement of the gas by a gas-impervious cover to the soil under treatment. Almost complete control, 99 per cent., was shown in closed container experiments and field plots showed less control of the nematode but a marked increase of vigour in tomato plants subsequently grown. M.J.T.

246—Prager Tierärztliches Archiv.

a. HUNDHAMMER, H.—" Trichinose im städt. Schlachthofe in Asch." XIV (6), 119-120. [1934.]

(a) Hundhammer points out that, although the well-equipped State slaughter house at Asch contained all the apparatus for Trichinella inspection, this was never used since the law did not require it, and no human cases of trichinosis had occurred in 25 years. In 1934, however, there was an epidemic, with 2 deaths, and now the law has been suitably amended. B.G.P.

247—Proceedings of the Society for Experimental Biology and Medicine.

a. WANTLAND, W. W.—" Effect of irradiated ergosterol and calcium lactate on calcification of trichina cysts." XXXII (3), 438-444. [1934.]
b. FENG, L.—" Intermediate hosts of *Microfilaria malayi* in Chekiang, China." XXXII (3), 494-496. [1934.]
c. KHAW, O. K.—" Concentrated Fouadin in treatment of Schistosomiasis japonica in rabbits." XXXII (3), 520-522. [1934.]

(a) Wantland finds that by feeding irradiated ergosterol and calcium lactate to trichinosed rabbits, the rate of calcification of the cysts is speeded up. In less than 6 weeks he can obtain as much calcification as normally occurs in 7 to 8 months. He suggests that this may have a definite therapeutic value as the heaviest mortality in trichinosis occurs during the early stages of calcification. P.A.C.

(b) *Microfilaria malayi* is transmitted at Huchow, Chekiang Province, China, by *Anopheles hyrcanus* var. *sinensis*. In this mosquito the larva reaches infectivity in 6 days during July and August. In *M.* (*Mansonioides*) *uniformis* infectivity is also attained but only by small numbers. *Culex pipiens*, *Aëdes albopictus* and *Armigeres obturbans* are not intermediaries. R.T.L.

(c) 20 out of 27 rabbits infected experimentally with *Schistosoma japonicum* were given 6 weekly intramuscular injections of " Concentrated Fouadin." 14 were cured whereas 5 out of the 7 controls died. R.T.L.

248—Profilassi.

a. LANZILLO, V.—" Sulla broncopneumonite verminosa dei bovini." VII (1), 13-14. [1934.]
b. DEL CHIARO, V.—" Contributo alla casistica delle lesioni muscolari da tenia echinococco nei bovini." VII (5), 161-163. [1934.]

(a) Lanzillo describes an outbreak of verminous bronchitis, diagnosed as due to *Dictyocaulus viviparus* by Alessandrini, among a herd of 200 cattle

two of which died. The symptoms were dispersed by a single intratracheal injection of 10 cc. of a 10 per cent. oil solution of chloroform. B.G.P.

(b) After a rapid review of published cases of hydatid found in the musculature of animals, Vinicio del Chiaro presents the case of a cow infested not only with numerous cysts in the viscera but also with 5 large ones in the neck muscles. B.G.P.

249—Puerto Rico Journal of Public Health and Tropical Medicine.

a. HOFFMAN, W. A. & FAUST, E. C.—" Studies on Schistosomiasis mansoni in Puerto Rico. II. The epidemiology and geographical distribution of Schistosomiasis mansoni in Puerto Rico. 1. Epidemiology of the infection on the Island." IX (3), 228-254. [1934.]

b. FAUST, E. C. & HOFFMAN, W. A.—" Studies on Schistosomiasis mansoni in Puerto Rico. III. Biologcial studies. 1. The extra-mammalian phases of the life cycle." X (1), 1-47. [1934.]

(a) Hoffman and Faust, in a study on the epidemiology of schistosomiasis mansoni in Puerto Rico, show that the disease is an important public health problem in the island, that it is widely but irregularly distributed and that it is slowly spreading and its incidence increasing.

The most important foci are named. Streams, and their bathing pools, and the irrigation system derived from them are the principal sources of infection in the south. The intermediate host is *Helisoma guadaloupense* and some facts concerning the habits of the snail in relation to its environment are presented. The habits of the population play an important rôle in the spread of the disease and evidence of pollution of water courses and diversion of sewage into streams was observed. Schistosomiasis though not restricted to the poorer classes occurs most frequently in this group. Infestation is usually contracted through bathing, especially in children, and wading, in labourers connected with irrigation systems of cane fields. The closer the proximity to cercariae-containing waters the earlier the age at which the disease is contracted and some data on these circumstances are given. J.N.O.

(b) Faust and Hoffman have conducted biological studies on the extra-mammalian phases of the life history of *Schistosoma mansoni* in Puerto Rico.

Human cases and experimental monkeys were used as sources of eggs which were for the most part mature and viable on discharge from the mammal in early stages of acute infection and usually non-viable in evacuations of chronic cases. Differences in measurements of a large series of eggs from humans and monkeys are ascribed to shrinkage after fixation and not to intrinsic differences in the strain or to influences produced by the host. The structures of the unhatched larva and free-living miracidium were studied and are compared with similar stages of *S. japonicum*. Mature, unhatched miracidia survived, in formed faeces, for 2–3 days at 75–90°F., and a week or more at 45–50°F., but in semiformed or liquid faeces for 24 hours. Hatching resulted from dilution of faeces with much water and was spread over 48 hours. Free miracidia had less than 24 hours expectation of life. The molluscan host in Puerto Rico is *Australorbis glabratus* and its anatomy has been studied to trace the migration path of miracidia and their progeny. The tentacles and, to a less extent, the head-foot organ were attacked and penetrated. In endemic foci natural infection incidences of 0–34·4 per cent. were obtained.

Helisoma (*Pierosoma*) *lentum*, common in the New Orleans area, proved completely refractive to laboratory infection. A vast cercarial progeny, amounting to several tens of thousands from snails infected with a single miracidium of *S. mansoni*, is regarded as due primarily to the fecundity of second generation sporocysts which continued production over several months. The intra-molluscan phase required 22–31 days, the critical period for the snail being between the 15–24 days when rapidly maturing cercariae might erupt *en masse* with sufficient destruction of tissue to produce the mollusc's death. Careful examination of immature and mature cercariae confirmed the previous work of other investigators on morphological details. The cercariae were found to be definitely phototactic and emerged from the snail in greatest numbers in direct sunlight between 9 a.m. and 2 p.m.; their free-living existence appeared to be limited to 24–30 hours.

From *A. glabratus* in endemic foci 3 species of non-schistosome cercariae were obtained: *Cercaria neotropicalis* n. sp., a strigeoid larva apparently closely related to *Cotylurus*; *C. marini* n. sp. and *C. paucispina* n. sp., both echinostomate forms. All are described and figured and are, respectively, Marin's Cercaria II, III and IV. J.N.O.

250—Queensland Agricultural Journal.

a. ROBERTS, F. H. S.—"Parasites of the horse." XLII (4), 473-489. [1934.]
b. ROBERTS, F. H. S.—"The parasites of poultry." XLII (5), 561-572. [1934.]

(a) Habronemiasis is a very important disease in horses in Australia and a large percentage of cases of debility are attributed to this cause while growths in the eye and penis are due to the larvae and swamp cancer may also be an associated condition. Other helminths mentioned are *Anoplocephala* spp., *Ascaris equorum*, *Strongylus* spp., Trichonemas and *Oxyuris equi* but their incidence and importance in Australia are not discussed. R.T.L.

(b) In Queensland fluke infestations in poultry are as yet unknown whereas six species of tapeworms occur. Of roundworms *Ascaridia lineata* is the commonest. *Capillaria retusa*, *Heterakis gallinae*, *Dispharynx spiralis* and *Cheilospirura hamulosa* are mentioned. *Oxyspirura parvovum* is of interest only to poultry keepers in North Queensland. It does not occur south of Rockhampton. R.T.L.

251—Records of the Indian Museum.

a. MOGHE, M. A. & INAMDAR, N. B.—"Some new species of avian cestodes from India with a description of *Biuterina intricata* (Krabbe 1882)." XXXVI (1), 7-16. [1934.]
b. GOGATE, B. S.—"On trematodes from wild ducks in Rangoon." XXXVI (2), 139-144. [1934.]
c. SINHA, BIPIN BIHARI.—"A new genus of blood flukes of the family Spirorchidae, from the tortoise, *Hardella thurgi* (Gray)." XXXVI (2), 147-151. [1934.]
d. JOHRI, L. N.—"Report on a collection of cestodes from Lucknow (U.P., India)." XXXVI (2), 153-177. [1934.]

(a) Five new cestode species are described by Moghe and Inamdar as follows:—*Raillietina* (*Paroniella*) *malpastina* n. sp., *R.* (*Paroniella*) *dussyntesticulata* n. sp., *Ophryocotyloides monocantis* n. sp., *Diorchis magnicirrosa*

n. sp., *Paruterina septotesticulata*, n. sp. A complete description is appended of *Biuterina intricata*, of which the gravid proglottids were described by Fuhrmann in 1908 under the name *Biuterina lobata*, synonymous with *Taenia intricata* Krabbe, 1882. E.M.S.

(b) The trematodes of two species of wild duck are described by Gogate. One of the ducks, *Anas poecilorhyncha* contained only *Echinostoma revolutum* in its intestine. From the other duck, *Dendrocygna javanica* (Gmelin), the writer records two echinostomes and a schistosome. *Paryphostomum testrifolium* n. sp. was found in the intestine. It possesses 27 collar spines arranged in a single row, and trilobate testes. The possession of a double row of spines is thus not, as has been stated, characteristic of the genus. A key to the four known spp. of *Paryphostomum* is given.

Petasiger minutissimus sp. nov. also from the intestine of the same duck, is the second echinostome described. It bears 23 collar spines arranged in a row of 17 and two lateral groups of three. There is a close resemblance to *P. neocomense* Fuhrmann. A key to the genus *Petasiger* Dietz is appended. Two immature males of *Ornithobilharzia* sp. were found in the blood of the same duck but a specific diagnosis was not made. S.G.S.

(c) Sinha describes and figures a new Spirorchid which he names *Gomtiotrema sanguina* n. g., n. sp., from the larger blood vessels of the Indian tortoise *Hardella thurgi* (Gray). The locality is the River Gomti, Lucknow. The new genus differs from *Spirorchis*, *Henotosoma* and *Haematotrema* in the possession of a ventral sucker, in the shape and number of the testes, of which there are twelve, oval to spherical in shape, in front of the female genitalia, and in the presence of a peculiar loop of the caeca near their oesophageal end. The uterus, which is very short, contained a single egg with a terminal knob. S.G.S.

(d) Most of the cestodes described by Johri are from pigeons, many of which are very heavily infected, at Lucknow. The infections are definitely pathogenic and Johri considers the intermediate host to be a small arthropod, such as a weevil, which is swallowed with the corn on which the birds feed. Birds from rural regions were less heavily infected than those from urban districts. The specimens described comprise 46 species and 1 (new) subspecies representing 16 genera. Of these 2 genera and 11 species are considered to be new and 1 species to be *inquirenda*. A few mammalian cestodes are included.

The new genera are :—*Pseudoligorchis magnireceptaculata* (Hymenolepidinae) from a bat and *Gidhaia indica* (Dilepidinae) from *Gyps indicus*. The new spp. comprise :—*Oochoristica thapari* from *Calotes* sp., five new species of *Cotugnia*, viz., *C. bahli* from *Turtur suratensis*, *C. govinda* from *Milvus govinda*, *C. intermedia* from *Columba intermedia*, *C. januaria* from *Gallus domesticus*, and *C. noctua* also from *Columba intermedia*.

Further new species are *Eugonodaeum ganjeum* from *Acridotheres tristis* and *Eugonodaeum testifrontosa* from *Gallinago coelestis*. *Oligorchis hierticos* n. sp., was found in *Milvus govinda*. *Raillietina* (*Skrjabinia*) *kakia* is recorded as a *species inquirenda* from *Corvus splendens* and *Raillietina* (*R.*) *penetrans nova* as a new subspecies from the Indian Mynah.

The writer regards the genera *Unciunia* and *Eugonodaeum* as synonymous. Diagnostic tables for certain species of *Eugonodaeum*, *Raillietina* and *Anoplocephala* are included. S.G.S.

252—Report. Department of Plant Pathology. Seale-Hayne Agricultural College.

a. ANON.—" The spread of potato eelworm in consignments of seed potatoes." Pamphlet No. 42, 5-6. [1934.]
b. ANON.—" Violet eelworm (*Aphelenchoides olesistus*)." Pamphlet No. 42, 8-11. [1934.]
c. ANON.—" Notes on hot water treatment of strawberry runners." Pamphlet No. 42, 11-14. [1934.]
d. ANON.—" Narcissus disease and pest control calendar." Pamphlet No. 42, 15-23. [1934.]
e. ANON.—" Notes on pests during the year: cereals—potatoes—other vegetables—flowers." Pamphlet No. 42, 24-26. [1934.]

(a) Cysts of *Heterodera schachtii* have been found in the soil contained in seed-potato sacks from Lincolnshire and Scotland and also in the soil adhering to the tubers themselves.

To avoid the danger of importing the nematode to clean land by this means it is advised that seed should, when possible, be obtained from uninfected farms, that the soil and rubbish in the sacks should be burned and that the tubers should be washed in cold water and thoroughly dried before being placed in sprouting trays. Seed potatoes were found to sprout in a normal manner after treatment for 20, 30, 60 and 90 minutes in water at 110°F., and those treated for 20 minutes showed more vigorous growth than the controls and produced almost double the yield. M.J.T.

(b) The disease symptoms produced by *Aphelenchoides olesistus* in violets in the south-west of England are described and certain control measures are suggested.

The symptoms differ from those described by Schwartz in Germany in that no galls are formed and the condition of diseased plants resembles " Red Plant " of strawberries rather than " Cauliflower " disease. Healthy runners from healthy plants should be used for propagation and these should be selected in September and re-examined in March at the time of replanting. Violets should not be grown for two successive seasons on the same soil. Hot water treatment for this disease is still in the experimental stage but a 30 minute treatment at 110°F. seems likely to give good results. M.J.T.

(c) Some eelworms (*Aphelenchoides fragariae*) were found to survive in strawberry plants given 15 and 20 minute treatment at 110°F., 30 minute treatment is thought to be preferable. For the best results the plants should be treated in small batches, cooled quickly by cold water and planted immediately. M.J.T.

(d) Instructions are given regarding measures which can be taken by growers to control diseases of narcissus (including *Anguillulina dipsaci*) throughout the year.

Land under cleaning crops should be cleared of volunteer bulbs in the early spring and plants showing " spickles " and other symptoms should be removed

and burnt, infected areas being noted. Hot water treatment of forced bulbs should be begun in June. Other bulbs are best treated between August 12th and September 3rd, the actual dates varying according to district and the variety of the bulbs. Bought stock should be given hot-water treatment as late as October if necessary to avoid introduction of eelworm. M.J.T.

(e) The following nematode parasites have been found in south-west England during 1933 : *Anguillulina dipsaci* infecting oats, phlox and narcissus ; *Heterodera schachtii* infecting potatoes and *H. marioni* infecting tomatoes ; *Aphelenchoides olesistus* infecting violets and *A. ritzema-bosi* infecting chrysanthemums. M.J.T.

253—Revue de Microbiologie d'Épidémiologie et de Parasitologie.

a. FEDOROWA, T., TSCHISCHOWA, W. & SCHMELEWA, A.—" Zur Charakteristik der Helminthofauna bei Hausmäusen (*Mus musculus hortulanus* Nordm.) im Nord-Kaukasischen Gebiet und über den Zusammenhang zwischen Helmintheninvasion und Streptokokkeninfektion." XII (3), 183-187. [In Russian : German summary, pp. 187-188.] [1934.]

b. SCHULZ, R. E & DOBROWA, M.—" Beitrag zur Kenntnis der Helminthen der Wasserratten." XII (4), 229-331. [In Russian : German summary, p. 331.] [1934.]

(a) In 1932 an epizootic among mice in the northern Caucasus was shown to be due to a streptococcal infection. On the basis of examining 135 mice, Fedorowa *et al.* claim to have shown a correlation between the incidence of the streptococcus (and its lesions) and that of helminthic parasites, particularly *Hymenolepis murina.* B.G.P.

(b) Schulz and Dobrowa have found 19 out of 29 water-rats (*Arvicola amphibius*) infested with the following helminths :—*Syphacia obvelata* (3 rats), *Longistriata wolgaensis* (12), *Plagiorchis arvicolae* (7) and *Psilostomum arvicolae* n. sp. (1). The new species is briefly described and illustrated from a single specimen. B.G.P.

254—Revue Suisse de Zoologie.

a. FUHRMANN, O.—" Vier Diesing'sche Typen (Cestoda)." XLI (4), 545-564. [1934.]

b. KREIS, H. A.—" *Foleyella helvetica* n. sp. eine neue Filarie aus *Rana esculenta* L." XLI (4), 735-739. [1934.]

(a) Fuhrmann describes and figures with great clearness from the now badly macerated type material, four genera of cestodes created by Diesing in 1855. They are *Ephedrocephalus microcephalus*, *Amphoteromorphus peniculus*, *Peltidocotyle rugosa*, and *Zygobothrium megacephalum.* The hosts are Silurids from Brazil, and all the worms are placed in the family Monticelliidae.

A recent paper by Harwood (1933) in which it is suggested that the Monticelliidae should be united with the Proteocephalidae is very strongly criticized. He discusses also the description by Woodland (1933) from new material of these four species, and points out that *Peltidocotyle rugosa* Woodland is not *P. rugosa* Diesing, while *Onithoscolex* Woodland is synonymous with *Peltidocotyle* Diesing. In conclusion he gives Woodland's classification of the Proteocephalidae into seven sub-families. E.M.S.

(b) Kreis gives a morphological description, based on a female, of *Foleyella helvetica* n. sp., a filariid from the musculature of the thigh of *Rana esculenta*. It is compared, in a table, with the two closely related American species, *F. ranae* and *F. americana*, in relation to which it occupies an intermediate position. J.N.O.

255—Revue Vétérinaire et Journal de Médecine Vétérinaire et de Zootechnie.

a. LOMBARD, C.—"Parasites et cancer." LXXXVI, 361-382. [1934.]
b. CUILLÉ & DARRASPEN.—"Considérations sur la strongylose cardio-pulmonaire du chien." LXXXVI, 481-486. [1934.]
c. MAROTEL & BOUCHET.—"Traitement par voie sanguine des strongylo-cylicostomoses larvaires." LXXXVI, 559-565. [1934.]

(a) Surveying the literature dealing with the relationship of parasites to cancerous growths, Lombard expresses the opinion that parasites are more frequently the cause of cancer than has been supposed. He thinks that the parasite is frequently eliminated after inducing cancerous changes.

Helminths, particularly the larval stages of cestodes, have frequently been found at the centre of, or in the neighbourhood of, tumours and there is experimental evidence that *Hymenolepis microstoma* has invoked an adenoma of the biliary tracts. Such changes are, however, not confined to cestodes for *Spiroptera neoplastica* is believed to be the exciting cause of gastric carcinoma in rats and *Trichostrongylus axei* the cause in donkeys. Other helminthic examples are quoted and there are sections dealing with protozoan and arthropod parasites. P.A.C.

(b) Cuillé and Darraspen record further observations on the pathology and symptoms of cardio-pulmonary strongylosis due to *Haemostrongylus vasorum* in dogs.

This strongylosis is characterized by an obliteration of the ramifications of the pulmonary artery resulting from the irritation of the vascular walls by the parasite. The pulmonary lesions, restricted to young animals, are accompanied by hypertrophy, with or without dilatation, of the right heart and, in adult dogs, this is followed by peri-vascular sclerosis and pulmonary emphysema. Dogs which have recovered after treatment for bronchitis may live 10 to 12 years but eventually die from syncope or cardiac insufficiency.

Hypertrophy of the liver follows directly from the weakening of the right heart and this condition may develop as much as four and a half years after infection. D.O.M.

(c) Marotel and Bouchet devised an experiment to test the larvicidal action of Stovarsol against strongyle and cylicostome larvae in horses. 12 horses were disinfested of adult worms by an oral administration of Lagaillarde's vermifuge and, a week later, 9 were given 15 to 50 gm. of sodium-Stovarsol intravenously (jugular route) in doses of 5 gm. of a 10 per cent. solution repeated every 48 hours. The other 3 were controls. 4 injected and 2 control horses had to be eliminated owing to the experimental conditions' not having been observed. Of the remaining 5 injected horses, success was obtained in 4 cases. Stovarsol is harmless in doses up to 50 gm., is not excessively dear, and is apparently effective—the

4 successes were gained with 15 and 25 gm. doses. The experiments are to continue, using other drugs and possibly other parasites such as the bovine oesophagostomes. B.G.P.

256—Revue de Zoologie et de Botanique Africaines.

a. RODHAIN, J. & VUYLSTEKE, C.—" *Cystidicola minuta* n. sp. ver parasite de *Barbus eutaenia*, au Katanga." XXIV (4), 406-409. [1934.]

(a) Rodhain and Vuylsteke give a morphological description of *Cystidicola minuta* n. sp. from the oesophagus of a small Barbel, *Barbus eutaenia* caught at Katanga, Belgian Congo. 2 males and 3 females were examined. Peculiarities of note are the situation of the vulva in the posterior region of the body, 10 pairs of single, not coupled, preanal papillae and eggs provided laterally with two semi-oval, striated expansions which seem to be true floats. J.N.O.

257—Science Reports of the Tôhoku Imperial University.

a. TORYU, Y.—" Contributions to the physiology of the ascaris. II. The respiratory exchange in the ascaris *Ascaris megalocephala*." Ser. 4 (Biology), IX (1), 61-70. [1934.]

(a) Toryu has measured the carbon dioxide output of *Ascaris megalocephala* immersed in oxygen-free Ringer's solution at 38°C. and at 16° to 19°C. and also the rate of carbon dioxide output and oxygen intake under aerobic conditions.

The ascarid is not obligatory anaerobic. The amount of CO_2 produced under anaerobic conditions was from 20 cc. per 100 grams weight of the male worm to 80 cc. per 100 grams weight of the female as compared with 200 cc. for the male and 80 cc. for the female in the presence of oxygen. The anaerobic output of CO_2 occurred only after 9 to 12 hours from the beginning of the experiments. Nevertheless the author concludes that there is a true anaerobic production of CO_2 from the glycogen store of the Ascaris. The aerobic respiratory quotient of the young female and male was 0·7 whereas that of the large female was 2·89. D.O.M.

258—Soil Science.

a. GODFREY, G. H.—" Indicator plants for measuring soil populations of the root-knot nematode, *Heterodera marioni* (Cornu) Goodey." XXXVIII (1), 3-27. [1934.]

(a) Godfrey describes a method of estimating the nematode population of soil infected with *Heterodera marioni* by gall counts on the roots of indicator plants in heavy infestations and percentage of infected indicator plants in lighter infestations.

It is essential that the plants be grown under favourable conditions for growth and infection and for a time sufficient for, but not exceeding, the completion of the life-cycle—about 30 days. A high correlation was found between the number of galls and the number of larvae within the roots and formulae are given by which estimations of the nematode population of the soil can be made from gall counts. Observations on 25 to 100 indicator plants per block are necessary, and at least 20 separate blocks of plantings are desirable in a large field. M.J.T.

259—Taiwan Igakkai Zasshi.

a. YOKOGAWA, S.—"Experimental studies on the question why the mature larvae of Ancylostoma when ingested by an improper host migrate in the body, and do not migrate when given to the proper host." xxxiii (9), 122-125. [1934.]
b. NARIHARA, N.—"Form and colour of the egg and mode of its release from the gravid proglottids of the rat tapeworm, *Hymenolepis diminuta* (Rudolphi)." xxxiii (10/11), 147-148. [1934.]
c. NARIHARA, N.—"On the resistance of the egg of *Hymenolepis diminuta*." xxxiii (10/11), 148-149. [1934.]

(a) Yokogawa describes experiments made to determine why *Ancylostoma caninum* larvae, when given *per os* to a normal host, do not migrate to the lungs as usually happens when given to an abnormal host. Rabbits and dogs were used and the technique of the experiments is detailed. The author shows that penetration into the stomach wall by mature larvae is influenced, but not controlled exclusively, by the physical conditions within the stomach. Penetration, however, seems to depend much more on the biological nature of the host. J.N.O.

(b) Narihara gives a morphological description of the egg of *Hymenolepis diminuta* including measurements of shell, embryonic egg shell and hooks. Eggs in gravid segments are usually colourless but turn greenish yellow in faeces after 24 to 48 hours. Gravid proglottids, detached from the strobila in the small intestine, become digested by the intestinal secretions and liberate their eggs which pass out in the faeces. In summer 18·89 per cent. of house rats examined in Taihoku, Formosa, were infected whereas in autumn only 3·66 per cent. were infected. J.N.O.

(c) Experiments on the resistance of the eggs of *Hymenolepis diminuta* to drying, to various temperatures and chemical substances are briefly summarized in English from the Japanese text. R.T.L.

260—Technical Bulletin. United States Department of Agriculture.

a. LUCKER, J. T.—"Development of the swine nematode *Strongyloides ransomi* and the behavior of its infective larvae." No. 437, 30 pp. [1934.]

(a) Lucker has studied the development of *Strongyloides ransomi*, a pig parasite, in both free-living and parasitic generations. Morphological descriptions and measurements of the eggs and various larval stages are given. The author has also studied the behaviour of the infective larvae and found they could infect by the oral route and percutaneously, *via* the lungs. Skin penetration of rabbits, in which nematodes were reared to fertile maturity, guinea-pigs and swine was demonstrated. Third stage larvae were observed to moult only once in the intestine of the host about 6 days after oral or percutaneous infection. Exposure of cultures for 46 hours to temperatures from −4° to −8°C. prevented larval development while air drying for 9 or 10 minutes, at 24°C., was fatal to the worms. A source of moderate heat and diffuse daylight attracted the infective larvae but they avoided strong artificial light and were killed at non-lethal temperatures by direct sunlight in 45–60 minutes; they migrated actively and frequently perished as a result of desiccation. A 1 per cent. solution of copper sulphate or phenol or an ordinary dilute cresol disinfectant, found to be the most potent and destructive, were each fatal to the larvae.

Some observations on the clinical symptomatology produced in the host by the parasite were made. The author finally has suggested certain control measures, including the adoption of the McLean swine sanitation system and the selection of a dry, unshaded area as a permanent pasture. J.N.O.

261—Tierärztliche Rundschau.

a. MERKE, E.—" Lentin als Anthelminthikum und Emetikum bei Hunden." XL (48), 830-834. [1934.]

(a) Experiments by Merke on the oral administration of " Lentin " (a choline derivative) to dogs, showed that this substance, in sufficient amount, acted as an emetic in 30–60 minutes, but was ineffective as an anthelmintic.

R.H.H.

262—Tohoku Journal of Experimental Medicine.

a. TSUJI, H.—" Wirkung des Torilols, eines wirksamen Bestandteils der Früchte von Torilis Anthriscus, Gmel, einem japanischen Volksmittel gegen Askariden." XXIV (1/2), 174-194. [1934.]

(a) Tsuji shows that " torilol," the active principle of the fruit of *Torilis anthriscus* Gmel., is toxic in dilute solution to lower animals, including ascarids. It is, however, comparatively harmless to higher animals, whether given by mouth or injected subcutaneously. Its value in clinical medicine, as an anthelmintic, requires further investigation. R.H.H.

263—Transactions of the American Microscopical Society.

a. HORSFALL, M. W.—" Studies on the life history and morphology of the cystocercous cercariae." LIII (4), 311-347. [1934.]
b. KRULL, W. H.—" Studies on the life history of a trematode, *Rhipidocotyle septpapillata* n. sp." LIII (4), 408-415. [1934.]

(a) Horsfall has examined 11 out of the 13 described species of cystocercous cercariae and finds only 9 to be valid. She gives additional observations on types of parthenitae, cercarial development, cercaria and adult of *Cercaria macrostoma* and draws attention to the range of variation in size, development and structure which occurs in the species in different localities and at different seasons. The adult, *Proterometra macrostoma*, has been found in 10 species of fish and the method by which fish were infected with the cercariae is discussed. 7 localities where the larval or adult fluke has been found are named.

The author considers that the cystocercous cercariae form a homogenous group in which all species are remarkably similar in development and morphology and that, before emergence from the host, the tail is attached to the posterior end of the distome, but after emergence the distome lies within the vesicle of the tail. A key to the 9 valid species is included and the author observes that since the distomes of several species are almost indistinguishable, tail characters are essential in taxonomic work. J.N.O.

(b) Krull has studied the life-history and biology of *Rhipidocotyle septpapillata* n. sp. occurring in fish in the Potomac River, near Alexandria, Virginia. The first intermediate host is unknown but adult flukes were developed experimentally in the intestine and intestinal caeca of *Eupomotis gibbosus* by feeding with metacercariae encysted in the muscles and between

caudal fin rays and occurring naturally in the fish *Fundulus diaphanus diaphanus* and the definitive host, *E. gibbosus*. Temperature influenced rate of growth and also length of life of the parasite in the final host as, during the warmest weather (100°F. and above), the flukes matured in 5–7 days and were eliminated soon after reaching maturity, while in the coldest weather (as low as 45°F.) they matured in 10–12 days and maintained themselves in the fish for 30 days during which time miracidia developed in the eggs. Adult flukes were successfully transferred from one definitive host to another. Descriptions of metacercaria and adult and a key to the 5 species in the genus *Rhipidocotyle* are given. J.N.O.

264—Transactions of the Royal Society of Tropical Medicine (and Hygiene).

a. GRACE, A. W.—"Filarial lymphangitis, considered as a mild erysipelas resulting from hypersensitiveness to a B. haemolytic streptococcus of a particular type." XXVIII (3), 259-276. [1934.]
b. FISHER, A. C.—"A study of the schistosomiasis of the Stanleyville district of the Belgian Congo. XXVIII (3), 277-306. [1934.]

(a) Grace reviews the recent literature relating to filariasis and to hypersensitivity to the B. haemolytic streptococcus in conjunction with aspects of previous work in British Guiana.

He believes that filarial lymphangitis is synonymous with mild erysipelas and is produced entirely by the action of the B. haemolytic streptococcus directly or by the action of its toxin and that there is no evidence that *Wuchereria bancrofti* plays any part in the production of attacks. The abandonment of *W. bancrofti* as an agent in producing lymphangitis is argued from evidence (i) that the incidence of lymphangitis and elephantiasis among communities is independent of the microfilarial rate of the community and is correlated with the standard of living in general and the use of footwear in particular; (ii) that there exists, in British Guiana at least, a B. haemolytic streptococcus of a particular morphological type, of low virulence, infrequently found in temperate climates, but with innumerable opportunities of entering the lower limbs of the local population. J.N.O.

(b) Fisher reports on his investigation of the intestinal schistosomiasis, with eggs of the *S. haematobium* type, found by Chesterman in the Stanleyville district of the Belgian Congo. He points out that previous records of haematobium-like eggs exclusively in the stool are all from West Africa.

In the first part of his paper Fisher describes the parasite and shows that, on egg measurements, it can be distinguished from *S. haematobium* and *S. bovis*. He names it *S. intercalatum* n. sp. Cercariae from naturally infected *Physopsis africana* gave rise to mature adults in mice in 41+ days, but this mollusc resisted artificial infection. Part II deals with clinical manifestations and shows that the infestation is confined to persons below 30 years, is especially common in children under 10, and is singularly free from associated symptoms. Part III propounds a theory of immunity, a resistance to hyperinfection and an age immunity being both involved, probably as closely related mechanisms. Part IV gives the successful results of orally administered acriflavine, which alleviates dysentery within 48 hours and eliminates living eggs from the stool within 5 days. B.G.P.

265—United States Egg and Poultry Magazine.

a. CRAM, E. B.—" Campaigns against poultry parasites." XL (3), 30-33, 62, 63. [1934.]

(a) Cram has drawn up a war map against poultry parasites. The tactics recommended are based partly on the principles of medication and partly on measures to cut off all possible means of communication between parasite and host. As little control of internal parasites can be effected without a thorough understanding of the various methods by which the parasites spread and enter the final host, a brief survey has been given of these and of suitable methods of attack. P.A.C.

266—Veterinary Bulletin, U.S. Army.

a. UNDERWOOD, J. R.—" Equine dhobie itch a symptom of filariasis. A report on fifty-six cases." XXVIII (3), 227-236. [1934.]
b. HILL, V. C.—" Some data on diro-filariasis immitus (canine)." XXVIII (3), 252-257. [1934.]

(a) Underwood has studied " dhobie itch " which has been prevalent in the Philippine Islands for more than 30 years. The disease is a chronic remittent dermatitis characterized by the eruption of a few or many patches of papules and nodules which contain microfilariae. Observations over a period of 12 months on the symptoms and their relation to seasonal and climatic conditions, and examinations of scrapings and sections of skin, blood specimens and other tissues of 38 horses and 18 mules were made. Microfilariae were recovered from the reticular layer of the corium but not from any other tissue nor from animals unaffected with dhobie itch. The microfilaria is compared, in a table, with those previously reported from equines and appears to be a new species. The adult worm, however, was not found at 3 autopsies and the life history of the parasite is unknown. J.N.O.

(b) Hill provides data on the treatment of dogs, infected with *Dirofilaria immitis*, with a preparation appearing under the trade name of " Filsol " and advertised as a double salt of antimony in solution and compatible with normal blood. The symptoms associated with heartworm infection are noted. A detailed description of the technique used in making the injections is given and information on 7 cases treated is tabulated. J.N.O.

267—Veterinary Journal.

a. STEWART, W. L.—"A note on the development of *Fasciola hepatica* and an outbreak of acute liver rot." XC (10), 403-405. [1934.]
b. CURTICE, C.—" The veterinarian and sheep practice; especially as it relates to intestinal parasites." XC (10), 425-432. [1934.]

(a) A typical case of acute liver rot was observed by Stewart in a flock of sheep where a number of sudden deaths had occurred without premonitory symptoms.

Post-mortem examination on a ewe showed the liver much swollen and congested and containing a number of immature flukes. The capsule was studded with dark areas indicating the point of entry of the cercariae. Death was attributed to the excessive haemorrhage into the intestine as the result of extensive damage to the liver. D.O.M.

(b) Curtice discusses the various aspects of sheep management in their relation to the control of parasitic infections.

He found that the movement of lambs, with or without their ewes, to clean areas under a folding system every 10 days resulted in very light infestations. Two-week intervals in hurdling gave equally good results but three-week intervals resulted in heavier infections although this was insufficient to prevent the lambs from thriving. Lungworms, tapeworms and hookworms were almost entirely eliminated under this system. The author deals extensively with the various aspects of management and treatment and also with the technique of faecal examination. He concludes that, with improved methods, the raising of a worm-free flock is far from being improbable.

D.O.M.

268—Veterinary Medicine.

a. MAGENS, H. J.—"Pulmonary strongylosis of the small ruminants." XXIX, 316-319. [1934.]

(a) Magens gives a brief account of the structure and life-history of *Dictyocaulus filaria* and *Synthetocaulus rufescens* and discusses the etiology, distribution, symptoms and treatment of pulmonary strongylosis. Intratracheal injections of a 0·2 per cent. aqueous solution of picric acid in a dose of 2 cc. to 5 cc. and repeated in 3 or 4 days is considered effective while in severe cases showing lobar pneumonia an iodine preparation (Lipoiodol) is to be preferred. [The author's account of the life-history of *S. rufescens* is surprising in view of the more recent work on the subject.] D.O.M.

269—Veterinary Record.

a. PILLERS, A. W. N.—"Some observations on colic in adult cart-horses due to the larvae of *Strongylus vulgaris*." XIV (47), 1414-1420. [1934.]
b. BAYLIS, H. A.—"Fatal parasitic enteritis among razorbills." XIV (49), 1472-1473. [1934.]
c. HALL, M. C.—"Therapeutics of worm diseases." XIV (50), 1505-1506. [1934.]

(a) Pillers discusses the etiology of colic in horses and considers the larvae of *Strongylus vulgaris* to be one of the most important factors.

The migration of these larvae inside the host is still imperfectly understood but whichever way entry into the mesenteric artery is gained, damage is likely to be done to nerve plexuses. Further, the blockage of blood vessels with material from thrombi caused by the larvae results in paralysis, impaction and gas formation in the bowel, the latter being the principal factor in producing pain. The author also refers to post-mortem findings, principles of treatment and control of the parasite. D.O.M.

(b) An exceedingly large number of the Holostomes *Cotylurus platycephalus* was found by Baylis in the rectal region of the intestine of razorbills (*Alca torda*) picked up dead on the reservoir of the Metropolitan Water Board near Staines, Middlesex. This species, in particular, seemed to be responsible for the highly inflamed areas and the copious haemorrhage found in the intestine and since *C. platycephalus* had not previously been recorded from razorbills the author suggests that the severity of the disease might be

accounted for if these birds are not among the usual hosts of this parasite. The other parasites found were *Diplostoma* [*Hemistomum*] *pileatum*, *Metorchis xanthosomus* and *Ligula intestinalis*. D.O.M.

(c) In this summary of his paper read at the Twelfth International Veterinary Congress, New York, 1934, Hall urges the need for international co-operation in the campaign against the parasites of live stock.

Small-scale operations have only a limited value and lead to endless repetition and expense while nation-wide campaigns can give real control in a comparatively short time. Although interest in parasitology is on the increase there are still too many gaps in our knowledge owing to insufficient research and the author particularly mentions the need for drugs which would be effective against the small worms of the intestine, the tapeworms and the acanthocephalids. D.O.M.

270—Videnskabelige Meddelelser fra Dansk Naturhistoriske Forening i Kjøbenhavn.

a. KREIS, H. A.—"Neue Desmoscoleciden." XCVIII, 111-123. [1934.]

(a) Kreis describes 5 new species of the Desmoscolecidae from specimens collected by Dr. Th. Mortensen during his South Sea Expedition of 1914-1916. They are: *Desmoscolex keiensis*, *Quadricoma granulata*, *Tricoma globulosa*, *T. meridionalis*, and *T. parasitifera*. All these marine forms were taken at Kei Islands except the fourth, the locality of which is Banda Sea; Sunda Sea. The author briefly differentiates each species from its most closely related form. J.N.O.

271—Wiener Tierärztliche Monatsschrift.

a. FISCHER, A.—"Trichinenschau in Linz." XXI (4), 106-110. [1934.]

b. ORLOFF, I. W., ERSCHOFF, W. S. & BADANIN, N. W.—"Eine neue Trematoden-Krankheit der Schafe, hervorgerufen durch *Skrjabinotrema ovis* nov. gen., nov. sp. (Fam. Brachylaemidae Dollfus, 1931)." XXI (11), 321-326. [1934.]

(a) Fischer gives an illustrated account of the organization for Trichina inspection in Linz and of its historical development. Some 30,000 pigs are dealt with each year, and from 1924 to 1932 they have found each year from 1 to 8 pigs infected with Trichinella. B.G.P.

(b) Orloff, Erschoff and Badanin describe *Skrjabinotrema ovis* n. g., n. sp., a trematode from the small intestine of sheep in Western China. It is closely allied to *Hasstilesia* (Brachylaemidae) but differs from it in the following points. The genital opening is lateral, not median: the testes lie close together and the anterior border of the left testis does not reach the level of the ovary. The eggs are small and asymmetrical and show at the end, distal from the operculum, a small peg. They contain miracidia. The pathological action of the parasite is shown in the hypertrophy of the mucosa of the small intestine, together with an intense viscid, catarrhal transudate. P.A.C.

272—Zeitschrift für Fleisch- und Milchhygiene.

a. STENGEL.—"Über die Verbreitung der *Taenia saginata* in den einzelnen württembergischen Oberämtern." XLIV (14), 261-263. [1934.]
b. TENHAEFF, C. & FERWERDA, S.—"Die Echinokokkenkrankheit in Friesland und ihre Bekämpfung." XLIV (14), 263-265. [1934.]
c. LIEBSCH, W.—"Zu den Wurmknötchen im Rinderdarm." XLIV (14), 265-268. [1934.]
d. STEINBRÜCK.—"Ein neues Hilfsmittel für die Trichinenschau." XLIV (15), 287-288. [1934.]
e. STENGEL.—"Über die Verbreitung der *Taenia saginata* in den einzelnen württembergischen Oberämtern." XLIV (20), p. 381. [1934.]
f. HEMMANN.—"Hochgradige Echinokokkeninvasion (Echinococcus alveolaris) beim Rinde." XLIV (20), 382-383. [1934.]
g. WERNERY, H.—"Die Parasiten der Rinderlungen im Münsterland." XLIV (20), 383-385. [1934.]
h. KRUEGER.—"Finnen beim Rinde und Bandwurmbefall beim Menschen." XLIV (21), 401-403. [1934.]
i. OSTERTAG, R. v.—"Bemerkungen zu vorstehender Abhandlung." XLIV (21), 403-404. [1934.]
j. FRANKE, R.—"Die Abtötung der Rinderfinne durch Gefrieren und die Einrichtung von Behelfsgefrierräumen in öffentlichen Schlachthöfen." XLIV (23), 441-444. [1934.]
k. PROFE.—"Zur Verbreitung und Bekämpfung der *Taenia saginata*." XLV (4), 62-65. [1934.]
l. KELLER, H.—"Versuche und Erfahrungen mit dem abgekürzten Gefrierverfahren zur Tauglichmachung finniger Rinder." XLV (4), 65-68. [1934.]

(a) Stengel finds that *Taenia saginata* is common in Württemberg; about 2,000 tapeworm remedies are sold annually. The method of paying 10 marks for each adult worm brought in is good, but the people should be made fully aware of this offer. The infected townsman quickly treats himself, but the countryman is often permanently infected, and he is the main source of infection to cattle. B.G.P.

(b) Control of hydatid in Friesland is effected by the collection and destruction of infested organs. Tenhaeff and Ferwerda explain that the cars used by veterinarians and meat inspectors are adapted for this purpose. In the principal areas of infection private slaughtering is forbidden. It is important to avoid bursting hydatids, as by cutting them away from infested organs. B.G.P.

(c) Liebsch has found nodules containing nematode larvae in the intestine of cattle in Berlin. These are of two kinds, resembling those previously recorded by Drechsler (1876) and by Ströse (1895) respectively. No adults were found, so that a diagnosis could not be made, but the second and larger larva resembled an oesophagostome. Liebsch does not think that the smaller form is an earlier stage of the same parasite. B.G.P.

(d) Steinbrück describes a clamp for attaching an electric torch to a microscope, thereby facilitating the examination of meat preparations for trichinella cysts. B.G.P.

(e) Stengel calls attention to an error in his paper on *Taenia saginata* [see No. 272a above]. The population of Ludwigsburg is not 29,000 but 79,000: the incidence of taeniasis is thus low, and not high as had been stated. B.G.P.

(f) Hemmann presents a case report of a cow heavily infested with caseous, multilocular alveolar hydatid. The lesions were found in all

thoracic and abdominal organs except the uterus and were also widespread in lymphatic nodules throughout the body. The liver contained no normal tissue. The animal had been ill only a few weeks, and symptoms led to a false diagnosis of tubercle. B.G.P.

(g) The lungs of more than half the cattle of the Münster area show pathological changes due to parasites. Wernery briefly discusses the causal organisms which are, in order of importance, lungworms, liver flukes, hydatids, oestrid larvae, pentastome larvae and *Cysticercus bovis*. B.G.P.

(h) Krueger recommends the following measures for the control of *Taenia saginata* in Germany: (i) meadows fertilized with sewage should not be used for pasturing cattle, nor for hay; (ii) meat inspection should be thorough and infested carcasses should be confiscated; (iii) taeniasis should be notifiable on the part of doctors and chemists, and treatment should be compulsory; (iv) rewards should be offered for taenia heads. B.G.P.

(i) Commenting on the above paper, von Ostertag agrees with Krueger on most points. He thinks, however, that it may prove safe to use meadows fertilized with sewage liquors for hay production, since desiccation is likely to kill the *Taenia saginata* eggs. Thus, it is known that *T. echinococcus* eggs will not withstand more than 12 days' complete desiccation. B.G.P.

(j) According to Franke, the German Ministry of Health is considering the possibility of rendering cysticercous meat harmless by freezing the carcasses so that a temperature not above −3°C. is maintained for at least 24 hours in the interior of the meat. Franke points out that only 9·3 per cent. of German abattoirs are at present equipped with refrigeration plant, and he gives a brief specification for a suitable unit. B.G.P.

(k) Profé discusses the dissemination and control of *Taenia saginata* with special reference to recent papers by Stengel and Krueger (see Nos. 272a and 272h above). It may be misleading to compare incidence data of *Cysticercus bovis* as between different towns, since the thoroughness of meat inspection is a variable factor. Profé disagrees with Krueger's view that the fertilization of pastures with town sewage is the most important means of dissemination: he thinks streams play a more decisive rôle. Control might be improved by tightening up meat inspection and possibly by making taeniasis notifiable. It is impracticable, however, to forbid the sale or use of raw sausage meat. B.G.P.

(l) Keller points out that the 21-day meat refrigeration process is wasteful in that there is considerable loss of weight, depreciation, and localized desiccation. *Cysticercus bovis* is equally well killed by the less wasteful rapid process (−7°C. for a week), which ensures that all parts of the carcass remain at −3°C. at most, for 24 hours at least. After the rapid process thawing must proceed very slowly. B.G.P.

273—Zeitschrift für Parasitenkunde.

a. SCHEIDEGGER, S. & KREIS, H. A.—"Über Helminthiasis beim Schimpansen." VII (1), 44-60. [1934.]
b. GOFFART, H.—"Beobachtungen an *Heterodera marioni* (Cornu 1879) Goodey 1932 unter besonderer Berücksichtigung ihres parasitologischen Verhaltens." VII (1), 61-70. [1934.]

c. ERHARDT, A.—"Die Verbreitung von *Opisthorchis felineus* (Riv.) und anderen Katzenhelminthen in Ostpreussen." VII (1), 121-124. [1934.]
d. BYCHOWSKY, I. & BYCHOWSKY, B.—"Über die Morphologie und die Systematik des *Aspidogaster limacoides* Diesing." VII (2), 125-137. [1934.]
e. PAUL, D.—"Beobachtungen über die Darmparasiten schlesischer Anuren." VII (2), 172-197. [1934.]
f. INAMDAR, N. B.—"Four new species of avian cestodes from India." VII (2), 198-206. [1934.]
g. SCHEER, D.—"*Gammarus pulex* und *Carinogammarus roeselii* als Zwischenwirte von *Polymorphus minutus* (Acanth.)." VII (2), 268-272. [1934.]

(a) Scheidegger and Kreis describe the lesions of liver, spleen, and intestine in an anaemic chimpanzee heavily parasitized by *Ascaris* [sp. ?], *Oxyuris bipapillata* and a new oesophagostome *Paroesophagostomum polydentatum* n. g., n. sp. The two latter are fully described and figured. The splenic lesions were associated with the anaemia. In the liver were found numerous ascaris larvae and also eggs [described in a legend as embryonated eggs of ascaris larvae !]. The larval stages of the oesophagostome were found in nodules in the colon. B.G.P.

(b) Goffart records infections of *H. marioni* on red clover, lucerne, peas, vetch, sainfoin, potatoes and sugar beet.

Under greenhouse conditions the female worms were found to emerge from the root tissues instead of remaining embedded in root galls, thus simulating *H. schachtii*. It is suggested that in some instances such infections have been mistaken for *H. schachtii*. The damage to the host varies with climatic conditions, being most severe between the 15° annual isotherms and less severe outside these limits. T.G.

(c) Erhardt reports *Opisthorchis felineus* from 101 of 115 cats of the Karkeln district of East Prussia. *Metorchis albidus*, *Taenia taeniaeformis*, *Toxocara cati* and *Ancylostoma caninum* were also common. The commonest intensity of *O. felineus* infestations was 100-250 worms. Tables show the incidence of 12 helminths at Karkeln, compared with Braun's (1893) data for Konigsberg, and the intensity distribution of *O. felineus*, respectively. B.G.P.

(d) Bychowsky and Bychowsky have made a critical study of *Aspidogaster limacoides* based on numerous specimens collected during an expedition in 1931 and 1932 to the Volga delta and Ssara Island, near Lenkoran, in the Caspian Sea. The trematode, of which an extended morphological description is given, was recovered from the intestine of 13 species of fish. A wide variation in the number of alveoli of the ventral sucker disc, which itself varied in size, was observed. Dealing with systematics the authors consider that the genus is represented by 3 species : *A. conchicola* (type), *A. limacoides* syn. *A. donicum* (they are compared in a table) and *A. decatis* syn. *A. enneatis*. J.N.O.

(e) Paul has made a study of the entozoa of Anura collected in the neighbourhood of Breslau. The 388 amphibians examined included *Rana temporaria*, *R. arvalis*, *R. esculenta*, *Bombinator igneus*, *Bufo vulgaris*, *B. viridis*, *Hyla arborea* and unidentified tadpoles and very young adults. Under each host the author lists the protozoa and helminths found together with data on location, percentage infection and locality. No new helminth parasites were encountered. In a discussion the author refers to the seasonal

and locality incidence of the parasites recorded, the degree of infection in male and female hosts, the absence of helminths in the tadpoles and their presence in very young adults. Numerous statistical tables epitomize the mass of detailed information in the text. J.N.O.

(f) Inamdar describes and figures the following new species from birds: *Hymenolepis moghensis* n. sp., *H. victoriata* n. sp., *Similuncinus totaniochropodos* n. sp. and *Choanotaenia gondwana* n. sp. The last-named species belongs to the group formerly known as *Prochoanotaenia* Meggitt. E.M.S.

(g) Scheer has found two amphipods, *Gammarus pulex* and *Carinogammarus roeselii*, acting as intermediate hosts for *Polymorphus minutus*. The former was infected by 0·75 per cent. and the latter, hitherto unrecorded as a vector for this acanthocephalid, by 4·1 per cent. Different feeding habits is advanced as an explanation of the heavier infection of *C. roeselii* which is omnivorous and lives more in detritus and filth than does *G. pulex*. A table showing the relative infections of the amphipods from numerous stated localities is included. J.N.O.

274—Zeitschrift für Vergleichende Physiologie.

a. BRAND, T. v.—"Der Stoffwechsel von *Ascaris lumbricoides* bei Oxybiose und Anoxybiose." XXI (2), 220-235. [1934.]

(a) Investigation of the metabolism of *Ascaris lumbricoides* under oxybiotic (CO_2-free air bubbled through solution) and anoxybiotic (H_2 bubbled through) conditions gave the following average results: Glycogen content of fresh material: 7·18 per cent. Metabolic changes in 24 hours for 100 gm. of material: (*a*) Anoxybiotic conditions: Loss of glycogen, 1·39 g. and of protein 0·18 g. End products formed: 0·71 g. CO_2 + 0·22 g. valeric acid + 0·02 g. lactic acid + 0·02 g. N_2 excreted + 0·01 g. N_2 in eggs. Fat (total 1·15 g.) unchanged. (*b*) Oxybiotic conditions: Loss of glycogen, 1·18 g. and of protein 0·17 g. Amount of O_2 consumed, 0·21 g. End products formed: 0·84 g. CO_2 + 0·16 g. valeric acid + 0·01 g. lactic acid + 0·02 g. N_2 excreted + 0·01 g. N_2 in eggs. Fat unchanged. The metabolism under oxybiotic conditions is subdivided into: (i) Oxybiotic portion: Glycogen, 0·37 g. and O_2, 0·21 g. consumed. End products 0·34 g. CO_2 + x (unknown products). Respiratory quotient, about 0·9. (ii) Anoxybiotic portion: Glycogen 0·86 g. and protein 0·17 g. consumed. End products 0·48 g. CO_2 + 0·16 g. valeric acid + 0·01 g. lactic acid + 0·02 g. N_2 excreted + 0·01 g. N_2 in eggs. Fat unchanged. R.H.H.

275—Zoologische Jahrbücher.

a. BYCHOWSKY, B.—"*Dactylogyrus cryptomeres* n. sp. und einige Bemerkungen über Monogenea aus dem See Beloje." LXV (2), 193-208. [1934.]

(a) Bychowsky has surveyed and described the monogenetic trematodes from freshwater fish in Lake Beloje, Russia. Examination of 88 fish, comprising 21 species, yielded 9 spp. of monogenea of which one is new. The new sp. is *Dactylogyrus cryptomeres* which he considers the same as *D. major* "nomen nudum," described by Wagener in 1857. The specimens were all found on the branchial opercula of *Gobio gobio* in Lake Beloje. Eight out of 15 (53·3 per cent.) of the fish were infected, from 1 to 14 worms occurring on a single fish.

A detailed morphological description of *D. cryptomeres* is given and followed by full descriptions of the other monogenea found. A table of the various hosts and their parasites is appended. S.G.S.

Non-Periodical Literature.

276 —CAMERON, T. W. M.—" The internal parasites of domestic animals. A manual for veterinary surgeons." London, 292 pp., 144 illustrations. [1934.]

This textbook by Cameron treats of the protozoan and helminthic parasites of domesticated animals and is addressed to the veterinary practitioner and the student.

It is divided into seven parts as follows : Part I, 18 pages, is introductory, covering nomenclature and history. Part II, 30 pages, deals with the Protozoa. Part III, 169 pages, treats of the helminths in the following order, Nematoda, Acanthocephala, Trematoda and Cestoda with a final section on distribution of helminths. Part IV, 20 pages, deals with immunity and serology and Part V, 8 pages, with the therapeutics of helminthic infections. Part VI, 22 pages, covers technique and is addressed chiefly to clinicians not having access to well equipped laboratories. Part VII, 7 pages, consists of parasite-lists for cat, dog, fowl, horse, pig, ox and sheep with a line drawing of each host indicating the location of the parasite. There are 8 pages of bibliography and also a general index. The book is illustrated with numerous line drawings and half-tone photographs showing pathological reactions of tissues. A noteworthy feature is the number of illustrations in the form of line drawings which set out the life-history of a particular parasite in diagrammatic form. T.G.

277 —MÖNNIG, H. O.—" Veterinary Helminthology and Entomology." London, xvi + 404 pp., 264 figs. [1934.]

In this comprehensive treatise Mönnig deals with both helminthic and arthropodan parasites of domesticated animals and the diseases to which they give rise.

The book is divided into four principal sections of which the first two are comparatively short covering general topics (pp. 2-13) and technique (pp. 13-22) respectively. Section III treats of the helminths and occupies pp. 23-258. Each parasite, whether trematode, cestode or nematode, is briefly described and, in addition, information is given on life-cycle, symptoms, pathology, diagnosis, treatment and prophylaxis. Section IV (pp. 259-381) covers the arthropods including Insecta, Arachnida and Pentastomida and in this section also the same method of dealing with each parasite is followed. There are 264 illustrations in the text, most of which are from original line drawings. There is a good general index which is preceded by 10 pages of host-parasite lists. T.G.